





10 20 30 40 50 60  
 MDPAEAVLQEKALKFMNSSEREDCNNGEPPRKIIPEKNSLRQTYNSCARLCLNQETVCLA  
 70 80 90 100 110 120  
 STAMKTENCVAKTKLANGTSSMIVPKQRKLSASYEKEKELCVKYFEQWSESDQVEFVEHL  
 130 140 150 160 170 180  
 ISQMCHYQHGHSYLPMLQRDFITALPARGLDHIAENILSYLDAKSLCAAELVCKEY  
 190 200 210 220 230 240  
 RVTSDGMLWKKLIERMVRTDSLWRGLAERRGWGQYLFKNKPPDGNAPPNSFYRALYPKII  
 250 260 270 280 290 300  
 QDIETIESNWRCGRHSLQRIHCRSETSKGVYCLQYDDQKIVSGLRDNTIKIWDKNTLECK  
 310 320 330 340 350 360  
 RILTGTGSLVCLQYDERVITGSSDSTVRVWDVNTGEMLNTLIHHCEAVLHLRFNNGMM  
 370 380 390 400 410 420  
 VTCSKDRSIAVWDMASPTDITLRRVLVGHRAAVNVVDFDDKYIVSASGDRTIKVWNTSTC  
 430 440 450 460 470 480  
 EFVRTLNHGKRGIAQLQYRDLVVSGSSDNTIRLWDIECGACLRLVLEGHEELVRCIRFDN  
 490 500 510 520 530 540  
 KRIVSGAYDGKIKVWDLVAALDPRAPAGTLCLRTLVEHSGRVFRLQFDEFQIVSSSHDDT  
 550 560  
 ILIWDFLNDPAAQAEPSPSRPTYTYISR

FIG. 3A

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10 20 30 40 50 60 70 80 90  
TGCCTTGGCTCGCGCTGGCACCAGGGGGCGGCGGAGAGCGGACCCAGTGGCCTCGGCGATTATGGACCCGGCGAGCGGTGCTGC

100 110 120 130 140 150 160 170 180  
AAGAGAAGGCACTCAAGTTTATGAATTCTCAGAGAGAGAAGACTGTATAATGGCGAACCCCTAGGAAGATAATACCAGAGAAGAATTCAC

190 200 210 220 230 240 250 260 270 280  
TAGACAGACATACAACAGCTGTGCCAGACTCTGCTTAAACCAAGAACAGTATGTTTAGCAAGCACTGCTATGAAGACTGAGAATTGTGTGGCC

290 300 310 320 330 340 350 360 370  
AAAACAAAACCTTGCCAATGGCACTTCCAGTATGATTGTGCCAAGCAACGAACTCTCAGCAAGCTATGAAAAGGAAAAGGAACCTGTGTGTCA

380 390 400 410 420 430 440 450 460 470  
AATACTTTGAGCAGTGGTCAGATCAGATCAAGTGAATTTGTGGAACATCTTATATCCCAATGTGTCTATTACCAACATGGGCACATAAACTC

480 490 500 510 520 530 540 550 560  
GTATCTTAAACCTATGTTGCAGAGAGATTTTCACTAAGTCTCTGCCAGCTCGGGGATTGGATCATATCGCTGAGAACATTCTGTCTACACCTGGAT

570 580 590 600 610 620 630 640 650  
GCCAAATCACTATGTGCTGCTGAACCTGTGTGCAAGGAATGGTACCGAGTGACCTCTGATGGCATGCTGTGGAAGAGCTTATCGAGAGAATGG

660 670 680 690 700 710 720 730 740 750  
TCAGGACAGATTCTCTGTGGAGAGCGCTGGCAGAACGAAGAGGATGGGGACAGTATTTATTCAAAAACAAACCTCCTGACGGGAATGCTCCTCC

760 770 780 790 800 810 820 830 840  
CAACTCTTTTATAGAGCACTTTATCTTAAATTATACAAGACATTGAGACAATAGAATCTAATTGGAGATGTGGAAGACATAGTTTACAGAGA

850 860 870 880 890 900 910 920 930 940  
ATTCACTGCCGAAGTGAACAAGCAAAGGAGTTTACTGTTTACAGTATGATGATCAGAAAAATAGTAAGCGGCTTCGAGACAACACAATCAAGA

950 960 970 980 990 1000 1010 1020 1030  
TCTGGGATAAAAAACACATTGGAATGCAAGCGAATTTCTCACAGGCCATACAGGTTCACTCTCTGTCTCCAGTATGATGAGAGAGTATCATAAC

1040 1050 1060 1070 1080 1090 1100 1110 1120  
AGGATCATCGGATTCCACGGTCAGAGTGTGGATGTAAATACAGGTGAAATGCTAAACACGTTGATTACCATTTGTAAGCAGTTCTGCACTTG

1130 1140 1150 1160 1170 1180 1190 1200 1210 1220  
CGTTTCAATAATGGCATGATGCTGACCTGCTCCAAAGATCGTTCCATTGCTGTATGGGATATGGCCTCCCCAACTGACATTACCCTCCGGAGGG

1230 1240 1250 1260 1270 1280 1290 1300 1310  
TGCTGGTCGGACACCGAGCTGCTGTCAATGTTGTAGACTTTGATGACAAGTACATTGTTTCTGCATCTGGGGATAGAATATAAAGGTATGGAA

1320 1330 1340 1350 1360 1370 1380 1390 1400 1410  
CACAACTACTTGTGAATTTGTAAAGACCTTAAATGGACACAACAGGCAATGCTGTTTGCAGTACAGGACAGGCTGGTAGTGAGTGGCTCA

1420 1430 1440 1450 1460 1470 1480 1490 1500  
TCTGACAACACTATCAGATTATGGGACATAGAATGTGGTCATGTTTACGAGTGTAGAAAGCCATGAGGAATTGGTGCGCTTGTATTGATTG

1510 1520 1530 1540 1550 1560 1570 1580 1590  
ATAACAAGAGGATAGTCAGTGGGGCTATGATGGAAAAATTAAAGTGTGGGATCTTGTGGCTGCTTTGGACCCCGTGCTCTGCAGGACACT

1600 1610 1620 1630 1640 1650 1660 1670 1680 1690  
CTGCTACGGACCTTTGTGGAGCATTCCGGAAGAGTTTTTCGACTACAGTTTGATGAATTCAGATTGTCAGTAGTTCACATGATGACACAATC

1700 1710 1720 1730 1740 1750 1760 1770 1780  
CTCATCTGGGACTTCTTAAATGATCCAGCTGCCAAGCTGAACCCCGCTTCCCTTCTCGAACATACACCTACATCTCCAGATAAATAACCA

1790 1800 1810 1820 1830 1840 1850 1860 1870 1880  
TACACTGACCTCATACTTGGCCAGGACCCATTAAAGTTGCGGTATTTAAAGTATCTGCCAATACCAGGATGAGCAACAACAGTAACAATCAAC

1890 1900 1910 1920 1930 1940 1950 1960 1970  
TACTGCCAGTTTCCCTGGACTAGCCGAGGAGCAGGCTTTGAGACTCTGTTGGGACACAGTTGGTCTGCAGTCGGCCAGGACGGTCTACTC

1980 1990 2000 2010 2020 2030 2040 2050 2060  
AGCACAAGTACTGCTTCACTGCTGCTATCAGAAGATGCTTCTATCAATTTGTGAATGATTGGAACCTTTTAAACCTCCCTCTCTCTCTCTT

2070 2080 2090 2100 2110 2120 2130 2140 2150  
CACCTCTGCACCTAGTTTTTCCATTGGTTCCAGACAAGGTGACTTATAAATATATTTAGTGTTTTGCCAGAAAAA

FIG. 3B

10 20 30 40 50 60  
MERKDFETWLDNISVTFLSLTDLQKNETLDHLISLSGAVQLRHLSNNLETLLKRDFLKLL

70 80 90 100 110 120  
PLELSFYLLKWLDPQTLTCLLVSKQWNKVISACTEVWQTACKNLGWQIDDSVQDALHWK

130 140 150 160 170 180  
KVYLKAILRMKQLEDHEAFETSSLIGH SARVYALYYKDGLLCTGSDDL SAKLWDVSTGQC

190 200 210 220 230 240  
VYGIQHTCAAVKFDEQKLV TGSFDNTVACWEWSSGARTQHFRGHTGAVFSVDYNDELDI

250 260 270 280 290 300  
LVSGSADFTVKVWALSAGTCLNTLTGHTEWVTKVVLQKCKVKSL LHSPGDYILLSADKYE

310 320 330 340 350 360  
IKIWPIGREINCKCLKT LSVSEDRSICLQPR LHFDGKYIVCSSLGLYQWDFASYDILRV

370 380 390 400 410 420  
IKTPEIANLALLGFGDIFALLFDNRYLYIMDLRTESLISRWPLPEYRESKRGSSFLAGEH

PG

FIG. 4A

10 20 30 40 50 60 70 80 90  
ATGGAGAGAAAGGACTTTGAGACATGGCTTGATAACATTCTGTACATTCTTTCTCTGACGGACTTGACAGAAAATGAAACTCTGGATCACC

100 110 120 130 140 150 160 170 180  
TGATTAGTCTGAGTGGGGCAGTCCAGCTCAGGCATCTCTCCAATAACCTAGAGACTCTCCTCAAGCGGGACTTCTCAAACCTCTTCCCTGGA

190 200 210 220 230 240 250 260 270 280  
GCTCAGTTTTTATTGTAAAAATGGCTCGATCCTCAGACTTTACTCACATGCTGCGCTCGTCTCTAAACAGTGGAAATAAGGTGATAAGTGCTGT

290 300 310 320 330 340 350 360 370  
ACAGAGGTGTGGCAGACTGCATGTAAAAATTTGGGCTGGCAGATAGATGATTCTGTTCAGGACGCTTTGCACTGGAAGAAGGTTTATTGAAGG

380 390 400 410 420 430 440 450 460 470  
CTATTTTGAAGAATGAAGCAACTGGAGGACCATGAAGCCTTTGAAACCTCGTCATTAAATGGACACAGTGGCAGAGTGTATGCACCTTTACTACAA

480 490 500 510 520 530 540 550 560  
AGATGGACTTCTCTGTACAGGGTCAGATGACTTGTCTGCAAAGCTGTGGGATGTGAGCACAGGGCAGTCCGTTTATGGCATCCAGACCCACACT

570 580 590 600 610 620 630 640 650  
TGTGCACGGGTGAAGTTTGTATGAACAGAAGCTTGTGACAGGCTCCTTTGACAACACTGTGGCTTGTGGGAATGGAGTTCCGGAGCCAGGACCC

660 670 680 690 700 710 720 730 740 750  
AGCACTTTCCGGGGCACACGGGGCGGTATTTAGCGTGGACTACAATGATGAACCTGGATATCTTGGTGAGCGGCTTGCAGACTTCACTGTGAA

760 770 780 790 800 810 820 830 840  
AGTATGGGCTTTATCTGCTGGGACATGCCTGAACACACTCACCGGGCACCGGAATGGGTACCAAGGTAGTTTTCAGAGAGTCAAAGTCAAG

850 860 870 880 890 900 910 920 930 940  
TCTCTCTTGCACAGTCTCTGGAGACTACATCCTCTTAAGTGCAGACAAATATGAGATTAAGATTGGCCAATTGGGAGAGAAATCAACTGTAAGT

950 960 970 980 990 1000 1010 1020 1030  
GCTTAAAGACATTGTCTGTCTCTGAGGATAGAAGTATCTGCCTGCAGCCAAGACTTCATTTTGATGGCAAATACATTGTCTGTAGTTCAGCACT

1040 1050 1060 1070 1080 1090 1100 1110 1120  
TGGTCTCTACCAGTGGGACTTTGCCAGTTATGATATTCTCAGGGTCATCAAGACTCCTGAGATAGCAAACCTGGCCTTGTCTGGCTTTGGAGAT

1130 1140 1150 1160 1170 1180 1190 1200 1210 1220  
ATCTTTGCCCTGCTGTCTTGACAACCGCTACCTGTACATCATGGACTTGCGGACAGAGAGCCTGATAGTCCGCTGGCCTCTGCCAGAGTACAGGG

1230 1240 1250 1260 1270 1280 1290 1300 1310  
AATCAAAGAGAGGCTCAAGCTTCTGGCAGGCGAACATCCTGGCTGAATGGACTGGATGGGCACAATGACACGGGCTTGGTCTTTGCCACCAGC

1320 1330 1340 1350 1360 1370 1380 1390 1400 1410  
ATGCTGACCACAGTATTCACTGGTGTGTGGAAGGAGCACGGCTGACACCATGAGCCACCACCGCTGACTGACTTTGGGTGCCGGGGCTGGG

1420 1430 1440 1450 1460 1470  
GGTTTTGGGTGCACCTCTGCGGCACGGACTGCATGAACCAAAGTCTCACCTAATGGTATCATCA

FIG. 4B

10 20 30 40 50 60  
MKRGGRSDRNSSEEGTAEKSKKLRTTNEHSQTCDWGNLLQDIILQVFKYLPLLDRAHAS

70 80 90 100 110 120  
QVCRNWNQVFHMPDLWRCFEFELNQPATSYLKATHPELIKQIIKRHSNHLQYVSFKVDSS

130 140 150 160 170 180  
KESAEAACDILSQLVNCSLKTGLISTARPSFMDLPKSHFISALTVVVFVNSKSLSSLKID

190 200 210 220 230 240  
DTPVDDPSLKVLVANNSDTLKLLKMSSCPHVSPAGILCVADQCHGLRELALNYHLLSDEL

250 260 270 280 290 300  
LLALSSEKHVRLEHLRIDVSENPGQTHFHTIQKSSWDAFIRHSPKVNLMYFFLYEEEF

310 320 330 340 350 360  
DPFFRYEIPATHLYFGRSVSKDVLGRVGMTCPRLVELVVCANGLRPLDEELIRIAERCKN

370 380 390 400 410 420  
LSAIGLGECEVSCSAFVEFVKMCGGRLSQLSIMEEVLIPDQKYSLEQIHWEVSKHLGRVW

FPDMMPTW

FIG. 5A

CGGGGTGGTGTGTGGGGGAAGCCGCCCGGCAGCAGGATGAAACGAGGAGGAAGAGATAGTGACCGTAATTCATCAGAAGAAGGAAGTGCAGA  
GAAATCCAAGAACTGAGGACTACAAATGAGCATTCTCAGACTTGTGATTGGGGTAATCTCCTTCAGGACATTATTCTCCAAGTATTAAATAT  
TTGCCTCTTCTTGACCGGGCTCATGCTTCACAAGTTTGCCGCACTGGAACAGGTATTTACATGCCTGACTTGTGGAGATGTTTTGAATTTG  
AACTGAATCAGCCAGCTACATCTTATTTGAAAGCTACCCATCCAGAGCTGATCAAAACAGATTATTAAGAGACATTCAAACCATCTACAATATGT  
CAGCTTCAAGGTGGACAGCAGCAAGGAATCAGCTGAAGCAGCTTGTGATATACTATCGCAACTTGTGAATGCTCTTTAAAAACACTTGGACTT  
ATTTCAACTGCTCGACCAAGCTTTATGGATTACCAAAGTCTCACTTTATCTCTGCACTGACAGTTGTGTTGCTAAACTCCAATCCCTGTCTT  
CGCTTAAGATAGATGATACTCCAGTAGATGATCCATCTCTCAAAGTACTAGTGGCCAAACAATAGTGATACACTCAAGCTGTTGAAATGAGCAG  
CTGTCTCATGTCTCTCCAGCAGGTATCCTTTGTGTGGCTGATCAGTGTACGGCTTAAGAGAACTAGCCCTGAACCTACCATTATTAGTGTAT  
GAGTTGTTACTTGCATTGTCTTCTGAAAAACATGTTGATTAGAACATTGCGCATTGATGTAGTCAAGTGAAGATCCTGGACAGACACACTTCC  
ATACTATTCAAGAGTAGCTGGGATGCTTTTCATCAGACATTACCCAAAGTGAACCTTAGTGATGTATTTTTTTTTATATGAAGAAGAAATTTGA  
CCCCCTCTTTGCTATGAAATACCTGCCACCCATCTGTACTTTGGGAGATCAGTAAGCAAAGATGTGCTTGGCCGTGTGGGAATGACATGCCCT  
AGACTGGTTGAAGTGTAGTGTGCAAAATGGATTACGGCCACTTGTGAAGAGTTAATTCGCATTGCAGAACGTTGCAAAAATTTGTCAGCTA  
TTGGACTAGGGGAATGTGAAGTCTCATGTAGTGCCTTTGTTGAGTTTGTGAAGATGTGTGGTGGCCGCTATCTCAATTATCCATTATGGAAGA  
AGTACTAATTCCTGACCAAAAGTATAGTTTGGAGCAGATTCACTGGGAAGTGTCCAAGCATCTTGGTAGGGTGTGGTTTCCCGACATGATGCC  
ACTTGGTAAAACTGCATGATGAATAGCACCTTAATTTCAAGCAAATGTATTATAATTAAAGTTTATTATTGCTGTAAAAA

FIG. 5B



10 20 30 40 50 60  
MKRNSLSVENKIVQLSGAAKQPKVGFYSSLNQTHTHTVLLDWGSLPHHVVLQIFQYLPLL

70 80 90 100 110 120  
DRACASSVCRRWNEVFHISDLWRKFELNQSATSSPKSTHPDLIQQIIKKHFAHLQYVS

130 140 150 160 170 180  
FKVDSSAESAEAAACDILSQLVNCSIQTLGLISTAKPSFMNVSESHFVSALTVVFINSKSL

190 200 210 220 230 240  
SSIKIEDTPVDDPSLKILVANNSTLRLPKMSSCPHVSSDGILCVADRCQGLRELALNYY

250 260 270 280 290 300  
ILTDELFLALSSETHVNLEHLRIDVVSSENPQIKFHAVKKHSDALIKHSPRVNVVMHFF

310 320 330 340 350 360  
LYEEEFETFFKEETPVTHLYFGRSVSKVVLGRVGLNCPRLIELVVCANDLQPLDNELICI

370 380 390 400 410 420  
AEHCTNLTAALGLSKCEVSCSAFIRFVRLCERRLTQLSVMEEVLPDEDYSLDEIHTEVSK

430  
YLGRVWFDPVMPLW

FIG. 6A

10 20 30 40 50 60  
 ACATTTTCTAATGTTTACAGAATGAAGAGGAACAGTTTATCTGTTGAGAATAAAATTGTCCAGTTGTCA  
 70 80 90 100 110 120 130  
 GGAGCAGCGAAACAGCCAAAAGTTGGGTTCTACTCTTCTCTCAACCAGACTCATACACACACGGTTCTT  
 140 150 160 170 180 190 200  
 CTAGACTGGGGGAGTTTGCCCTCACCATGTAGTATTACAAATTTTTCAGTATCTTCCTTTACTAGATCGG  
 210 220 230 240 250 260 270  
 GCCTGTGCATCTTCTGTATGTAGGAGGTGGAATGAAGTTTTTCATATTTCTGACCTTTGGAGAAAGTTT  
 280 290 300 310 320 330 340  
 GAATTTGAACTGAACCAGTCAGCTACTTCATCTTTAAGTCCACTCATCTGATCTCATTCAGCAGATC  
 350 360 370 380 390 400 410  
 ATTAAAAAGCATTTTGCTCATCTTCAGTATGTACAGCTTTAAGGTTGACAGTAGCGCTGAGTCAGCAGAA  
 420 430 440 450 460 470 480  
 GCTGCCTGTGATATACTCTCTCAGCTGGTAAATTTGTTCCATCCAGACCTTGGGCTTGATTTC AACAGCC  
 490 500 510 520 530 540 550  
 AAGCCAAGTTTCATGAATGTGTCGGAGTCTCATTTTGTGTGCAGCACTTACAGTTGTTTTATCAACTCA  
 560 570 580 590 600 610 620  
 AAATCATTATCATCAATCAAAATTGAAGATACACCAGTGGATGATCCTTCATTGAAGATTCTTGTGGCC  
 630 640 650 660 670 680 690  
 AATAATAGTGACACTCTAAGACTCCCAAAGATGAGTAGCTGTCCCTCATGTTTCATCTGATGGAATTCTT  
 700 710 720 730 740 750  
 TGTGTAGCTGACCGTTGTCAAGGCCTTAGAGAAGTGGCGTTGAATTATTACATCCTAAGTATGAAGTT  
 760 770 780 790 800 810 820  
 TTCCTTGCACTCTCAAGCGAGACTCATGTTAACCTTGAACATCTTCGAATTGATGTTGTGAGTGAAAAT  
 830 840 850 860 870 880 890  
 CCTGGACAGATTAAATTTTCATGCTGTTAAAAAACACAGTTGGGATGCACTTATTAAACATTCCTTAGA  
 900 910 920 930 940 950 960  
 GTTAATGTTGTTATGCACTTCTTTCTATATGAAGAGGAATTCGAGACGTTCTTCAAAGAAGAAACCCCT  
 970 980 990 1000 1010 1020 1030  
 GTTACTCACCTTTATTTTGGTCGTTTCAGTCAGCAAGTGTTTTCAGGACGGGTAGGTCTCAACTGTCCT  
 1040 1050 1060 1070 1080 1090 1100  
 CGACTGATTGAGTTAGTGGTGTGTGCTAATGATCTTCAGCCTCTTGATAATGAAGTTATTTGTATTGCT  
 1110 1120 1130 1140 1150 1160 1170  
 GAACACTGTACAAACCTAACAGCCTTGGGCCTCAGCAAATGTGAAGTTAGCTGCAGTGCCTTCATCAGG  
 1180 1190 1200 1210 1220 1230 1240  
 TTTGTAAGACTGTGTGAGAGAAGTTAACACAGCTCTCTGTAATGGAGGAAGTTTGTATCCCTGATGAG  
 1250 1260 1270 1280 1290 1300 1310  
 GATTATAGCCTAGATGAAATTCACACTGAAGTCTCCAAATACCTGGGAAGAGTATGGTTCCCTGATGTG  
 1320  
 ATGCCCTCTCTGG

FIG. 6B

202070-CTA400T

10 20 30 40 50 60  
 MAGSEPRSGTNSPPPPFSDWGRLEAAILSGWKTFWQSVSKDRVARTTSREEVDEAASTLT  
 70 80 90 100 110 120  
 RLPIDVQLYILSFLSPHDLCLGSTNHYWNETVRNPILWRYFLLRDLPSWSSVDWKSPLY  
 130 140 150 160 170 180  
 LQILKKPISEVSDGAFFDYMAVYLMCCPYTRRASKSSRPMYGAVTSFLHSLIIPNEPRFA  
 190 200 210 220 230 240  
 LFGPRLEQLNTSLVLSLLSSEELCPTAGLPQRQIDGIGSGVNFQLNNQHKFNILILYSTT  
 250 260 270 280 290 300  
 RKERDRAREEHTSAVNKMFSRHNEGDDRPGSRYSVIPQIQKLCEVVDGFIYVANAEAHKR  
 310 320 330 340 350 360  
 HEWQDEF SHIMAMTDPAFGSSGRPLLVLSCISQGDVKRMPCFYLAHELHLNLLNHPWL VQ  
 370 380 390 400 410 420  
 DTEAETLTGFLNGIEWILEEVESKRAR\*FSFQILGTETI\*NLLRS\*CEYLLSQPTLSCL  
 430 440 450 460 470 480  
 FADRLSFGQL\*LLCFLYYFYFLP\*INYKKRVSVLVFSPKMNL\*TFFW\*FLYFLSF\*KY\*I

L

FIG. 7A

10 20 30 40 50 60  
ATGGCGGGAGCGAGCGCGCGCAGCGGAACAAATTCGCCGCGCGCCCTTCAGCGACTGGGGCCGCGCTG

70 80 90 100 110 120 130  
GAGGCGGCCATCCTCAGCGGCTGGAAGACCTTCTGGCAGTCAGTGAGCAAGGATAGGGTGGCGGTACG

140 150 160 170 180 190 200  
ACCTCCCGGAGGAGGTGGATGAGCGCGCCAGCACCTTGACGCGGCTGCCGATTGATGTACAGCTATAT

210 220 230 240 250 260 270  
ATTTTGTCTTTCTTTACCTCATGATCTGTCTCAGTTGGGAAGTACAAATCATTATTGGAATGAAACT

280 290 300 310 320 330 340  
GTAAGAAATCCAATTCTGTGGAGATACTTTTGTGGAGGATCTTCCTTCTTGGTCTTCTGTTGACTGG

350 360 370 380 390 400 410  
AAGTCTCTCCATATCTACAAATCTTAAAAAGCCTATATCTGAGGTCTCTGATGGTGCATTTTTTGAC

420 430 440 450 460 470 480  
TACATGGCAGTCTATCTAATGTCTGCCATACACAAGAAGAGCTTCAAAATCCAGCGCTCTATGTAT

490 500 510 520 530 540 550  
GGAGCTGTCACTTCTTTTACACTCCCTGATCATTCCCAATGAACCTCGATTGCTCTGTTTGGACCA

560 570 580 590 600 610 620  
CGTTTGAACAATGAATACCTCTTTGGTGTGGAGCTTGCTGTCTTCAGAGGAACCTTGCCCAACAGCT

630 640 650 660 670 680 690  
GGTTTGCCTCAGAGGCAGATTGATGGTATTGGATCAGGAGTCAATTTTCAGTTGAACAACCAACATAAA

700 710 720 730 740 750  
TTCAACATTCTAATCTTATATTCAACTACCAGAAAGGAAAGAGATAGAGCAAGGGAAGGCATACAAGT

760 770 780 790 800 810 820  
GCAGTTAACAAGATGTTTCAGTCGACACAATGAAGGTGATGATCGACCAGGAAGCCGCTACAGTGTGATT

830 840 850 860 870 880 890  
CCACAGATTCAAAAACCTGTGTGAAGTTGTAGATGGGTTTCATCTATGTTGCAAAATGCTGAAGCTCATAAA

900 910 920 930 940 950 960  
AGACATGAATGGCAAGATGAATTTTCTCATATTATGGCAATGACAGATCCAGCCTTTGGGTCTTCGGGA

970 980 990 1000 1010 1020 1030  
AGACCATTGTTGGTTTTATCTGTATTCTCAAGGGGATGTAAAAAGAATGCCCTGTTTTTATTTGGCT

1040 1050 1060 1070 1080 1090 1100  
CATGAGCTGCATCTGAATCTCTAAATCACCCATGGCTGGTCCAGGATACAGAGGCTGAAACTCTGACT

1110 1120 1130 1140 1150 1160 1170  
GGTTTTTGAATGGCATTGAGTGGATTCTTGAAGAAGTGAATCTAAGCGTGCAAGATGATTCTCTTTT

1180 1190 1200 1210 1220 1230 1240  
CAGATCTTGGGAACGAAACCATTTGAAATTTATTAAGTCTGTATGTGAATATTTGCTCAGTCAG

1250 1260 1270 1280 1290 1300 1310  
CCCACCTGTCTGCGCTTTTGCAGATAGGCTTTCATTGGACAGCTATAACTGCTGTGTTTTTATAT

1320 1330 1340 1350 1360 1370 1380  
TATTTTACTTTTACCATAAATCAATTACAGAAAAGAGTTTCAGTCTAGTATTTAGCCCCAAAATG

1390 1400 1410 1420 1430 1440  
AACCTTTAAACATTTTTTGGTAATTTTATATTTCTGTCTTTTAAAAATATTAAATTTGG

FIG. 7B

10 20 30 40 50 60  
MSRRPCSCALRPPRCSCSASPSAVTAAGRPRPSDSCKEESSTLSVKMKCDFNCNHVHSGL

70 80 90 100 110 120  
KLVKPDIGRLVSYTPAYLEGSCDKCIKDYERLSCIGSPIVSPRIVQLETESKRLHNKEN

130 140 150 160 170 180  
QHVQQTLNSTNEIEALETSLRYEDSGYSSFSLSQGLSEHEEGSLLEENFGDSLQSCLLQI

190 200 210 220 230 240  
QSPDQYPNKNLLPVLHFEKVVCSTLKKNAKRNPKVDREMLKEIIARGNFRLQNIIGRKMG

250 260 270 280 290 300  
LECVDILSELFRRGLRHVLATILAQLSDMDLINVSKVSTTWKKILEDDKGAFQLYSKAIQ

310 320 330 340 350 360  
RVTENNNKFSPHASTREYVMFRTPLASVQKSAAQTSKKDAQTKLSNQGDQKGSTYSRHN

370 380 390 400 410 420  
EFSEVAKTLKKNESLKACIRCNSPAKYDCYLQRATCKREGCGFDYCTKCLCNHYHTTKDCS

430 440  
DGKLLKASCKIGPLPGTKKSKKNLRL

FIG. 8A

10 20 30 40 50 60 70 80 90  
AGGTTGCTCAGCTGCCCCGGAGCGGTTCTCTCCACTGAGGCAGACACCCTCGGTTGGCATGAGCCGGCGCCCTGCAGCTGCCGCCCTACGG  
100 110 120 130 140 150 160 170 180  
CCACCCCGCTGCTCTGTCAGCGCCAGCCCCAGCGCAGTGACAGCCGCGGGCGCCCTCGACCCCTCGGATAGTTGTAAAGAAGAAAGTTCTACCC  
190 200 210 220 230 240 250 260 270 280  
TTTCTGTCAAAATGAAGTGTGATTTTAATTGTAACCATGTTTCATTCGGACTTAAACTGGTAAACCTGATGACATTGGAAGACTAGTTTCCTA  
290 300 310 320 330 340 350 360 370  
CACCCCTGCATATCTGGAAGGTTCTGTAAAGACTGCATTAAAGACTATGAAAGGCTGTCATGTATTGGGTCACCGATTGTGAGCCCTAGGATT  
380 390 400 410 420 430 440 450 460 470  
GTACAACTTGAAACTGAAAGCAAGCGCTTGCATAACAAGGAAATCAACATGTGCAACAGACACTTAATAGTACAAATGAAATAGAAGCACTAG  
480 490 500 510 520 530 540 550 560  
AGACCAGTAGACTTTATGAAGACAGTGGCTATTCCTCATTTTCTCTACAAAGTGGCCCTCAGTGAACATGAAGAAGGTAGCCCTCTGGAGGAGAA  
570 580 590 600 610 620 630 640 650  
TTTCGGTGACAGTCTACAATCTGCTGTACAAATACAAAGCCAGACCAATATCCCAACAAAACCTTGCTGCCAGTTCTTCATTTTGAAAAA  
660 670 680 690 700 710 720 730 740 750  
GTGGTTTGTTCACATTAAAAAAGAAATGCAAAACGAAATCTTAAAGTAGATCGGGAGATGCTGAAGGAAATTATAGCCAGAGGAAATTTTAGAC  
760 770 780 790 800 810 820 830 840  
TGCAGAAATATAATTGGCAGAAAAATGGGCTAGAAATGTGTAGATATTCTCAGCGAACTCTTTCGAAGGGGACTCAGACATGTCTTAGCAACTAT  
850 860 870 880 890 900 910 920 930 940  
TTTAGCACAACCTCAGTGACATGGACTTAATCAATGTGTCTAAAGTGAGCACAACCTTGAAGAAGATCCTAGAAGATGATAAGGGGGCATTCCAG  
950 960 970 980 990 1000 1010 1020 1030  
TTGTACAGTAAAGCAATACAAAGAGTTACCGAAAACAATAAATTTTACCTCATGCTTCAACCAGAGAATATGTTATGTTTCAAGCCAC  
1040 1050 1060 1070 1080 1090 1100 1110 1120  
TGGCTTCTGTTTCAAGAAATCAGCAGCCAGACTTCTCTCAAAAAAGATGCTCAAAACCAAGTTATCCAATCAAGGTGATCAGAAAGGTTCTACTTA  
1130 1140 1150 1160 1170 1180 1190 1200 1210 1220  
TAGTCGACACAATGAATTCCTGAGGTTGCCAAGACATTGAAAAAGAACGAAAGCCTCAAAGCCTGTATTGCTGTAATTCACCTGCAAAATAT  
1230 1240 1250 1260 1270 1280 1290 1300 1310  
GATTGCTATTTTACAACGGGCAACCTGCAAAACGAGAAGGCTGTGGATTGATTATTGTACGAAGTGCTCTGTAATTTATCATACTACTAAAGACT  
1320 1330 1340 1350 1360 1370 1380 1390 1400 1410  
GTTTCAGATGGCAAGCTCCTCAAAGCCAGTTGTAAATAGGTCCTGCTGGTACAAAGAAAAGCAAAAAGAAATTTACGAAGATTGTGATCTCT  
1420 1430 1440 1450 1460 1470 1480 1490 1500  
TATTAAATCAATTGTTACTGATCATGAATGTTAGTTAGAAATGTTAGGTTTAACTTAAAAAAATTTGATTGTGATTTTCAATTTTATGTTG  
1510 1520 1530 1540 1550 1560 1570 1580 1590  
AAATCGGTGTAGTATCCTGAGGTTTTTTTCCCCCAGAAAGATAAAGAGGATAGACAACCTCTTAAATATTTTACAATTTAATGAGAAAAAGT  
1600 1610 1620 1630 1640 1650 1660 1670 1680 1690  
TTAAATTTCTCAATACAAATCAAACAATTTAAATATTTTAAAGAAAAAGGAAAAGTAGATAGTACTGAGGGTAAAAAAAATTTGATTCAA  
1700 1710 1720 1730 1740 1750 1760 1770 1780  
TTTTATGGTAAAGGAACCCATGCAATTTTACCTAGACAGTCTTAAATATGTTCTGGTTTTCATCTGTTAGCATTTTCAGACATTTTATGTTCTCT  
1790 1800 1810 1820 1830 1840 1850 1860 1870 1880  
CTTACTCAATTGATACCAACAGAAATATCAACTTCTGGAGTCTATTAAATGTTGTCACCTTCTTAAAGCTTTTTTTCATGTGTGTTATTTCC  
1890 1900 1910 1920 1930 1940 1950 1960 1970  
CAAGAAAGTATCCTTTGTAAAACTTGCTTGTGTTTCTTATTTCTGAAATCTGTTTAAATATTTTGTATACATGTAATATTTCTGTATTTT  
1980 1990 2000 2010 2020 2030 2040 2050 2060  
TATATGTCAAAGAATATGTTCTGTTATGTATACATATAAAAAATAAATTTTGCTCAATAAAATTTGAAGCTTAAAAAAAATAAATCTCGAG  
2070  
ACTAGTGC

FIG. 8B

10 20 30 40 50 60  
ARSGASALRRRRVQVWVLSRPPPGGGDSFRTRRPQRGPGPGGSQAMDAPHSKAALDSINE  
70 80 90 100 110 120  
LPDNILLELFTHVPAQQLLNCRSLVCSLWRDLIDLTLWKRKCLRKGFITKDWDQPVADW  
130 140 150 160 170 180  
KIFYFLRSLHRNLLRNPCAENDMFAWQIDFNGGDRWKVDSLPGAHGTEFPDPKVKKSFVT  
190 200 210 220 230 240  
SYELCLKWELVDLLADRYWEELLDTRPDIVVKDWFAARADCGCTYQLKVQLASADYFVL  
250 260 270 280 290 300  
ASFEPPTIQQWNNATWTEVSYTFSYDPRGVRYILFQHGGRDTQYWAGWYGPRVTNSSI  
310 320 330  
VVSPKMTRNQASSEAQPGQKHGQEEAAQSPYGAVVQIF

FIG. 9A

10 20 30 40 50 60 70 80 90  
GCGCGTTCGGGAGCTTCGGCCCTGCGTAGGAGGGCGGGTGCCAGGTGTGGGTGCTGAGCCGCCCGCCCTGGAGGGGGAGACAGCTTCAGGACAC

100 110 120 130 140 150 160 170 180  
GCAGGCCGACGCGAGGGCCCCGGGGGGGATCCCAGGCCATGGACGCTCCCCACTCCAAAGCAGCCCTGGACAGCATTAAAGAGCTGCCCGA

190 200 210 220 230 240 250 260 270 280  
TAACATCCTGCTGGAGCTGTTACGCACGTGCCCGCCCGCCAGCTGCTGCTGAACTGCCCGCTGGTCTGCAGCCTCTGGCGGGACCTCATCGAC

290 300 310 320 330 340 350 360 370  
CTCCTGACCCCTCTGGAAAACGCAAGTGCTGCGAAAGGGCTTCATCACCAGGACTGGGACCAGCCCGTGGCCGACTGGAAAATCTTCTACTTCC

380 390 400 410 420 430 440 450 460 470  
TACGGAGCCTGCATAGGAACCTCCTGCGCAACCCGTGTGCTGAAAACGATATGTTTGCATGGCAAATTGATTTCATATGGTGGGACCGCTGGAA

480 490 500 510 520 530 540 550 560  
GGTGATAGCCTCCCTGGAGCCCACGGGACAGAATTCCTGACCCCAAGTCAAGAAAGTCTTTTGTACATCCTACGAACTGTGCCTCAAGTGG

570 580 590 600 610 620 630 640 650  
GAGCTGGTGGACCTTCTAGCCGACCGCTACTCGGAGGAGCTACTAGACACATTCCGGCCGGACATCGTGGTTAAGGACTGGTTTGTGCGCCAGG

660 670 680 690 700 710 720 730 740 750  
CCGACTGTGGCTGCACCTACCAACTCAAAGTGCCAGCTGGCCTCGGCTGACTACTTCGTGTGGCCTCCTTCGAGCCCCACCTGTGACCATCCA

760 770 780 790 800 810 820 830 840  
ACAGTGGAACATGCCACATGGACAGAGGTCTCTACACCTTCTCAGACTACCCCCGGGTGTCCGCTACATCCTCTTCAGCATGGGGGACAGG

850 860 870 880 890 900 910 920 930 940  
GACACCCAGTACTGGGACGGCTGGTATGGGCCCCGAGTACCAACAGCAGCATGTGCTCAGCCCCAAGATGACCAGGAACCGAGGCTCGTCCG

950 960 970 980 990 1000 1010 1020 1030  
AGGCTCAGCCTGGGCAGAACATGGACAGGAGGAGGCTGCCCAATCGCCCTACGGAGCTGTGTGTCAGATTTTCTGACAGCTGTCCATCCTGTG

1040 1050 1060 1070 1080 1090 1100 1110 1120  
TCTGGGTACGACAGAGGTTCCTCCAGGCAGGAGCTGAGCATGGGGTGGGAGTGGGCTCCCTGTACAGCGACTCCTGCCCCGGTTCAACCCTA

1130 1140 1150 1160 1170 1180 1190 1200 1210 1220  
CCAGCTTGTGTAACCTTACTGTACATAGCTCTGACGTTTTGTGTGTAATAAATGTTTTTCAGGCCGGGCACTGTGGCTCAGCCTGTAATCCAG

1230 1240 1250 1260 1270 1280 1290 1300 1310  
CACTTTGGGAGACCGAGGAGGTGGATCACGAGGTGAGGAGACAGAGACCATCCTGGCCAACACGGTGAAACCTGTCTCTACTAAAAATACAA

1320 1330 1340 1350 1360 1370 1380 1390 1400 1410  
AAAATTAGCCGGGCTGGTGGCGGCGCTGTAGTCCAGCTACTCGGGAGGCTGATGCAGAAGAATGGCGTGAACCCGGAAGGCAGAGCTTGC

1420 1430 1440 1450 1460 1470 1480 1490 1500  
AGTGAGCCGAGATCAGGCCACTGCACTCCAGCCTGGGTGACAGAGCGAGACTCTGGCTCATAAAATAATAATAATAATAATAATAATAATAATA

1510 1520 1530  
AATGGTTTTTCAGTAAAAAAAAAAAAAAAAAAAA

FIG. 9B



10 20 30 40 50 60  
 MSNTRFTITLNYKDPLTGDEETLASYGIVSGDLICLILHDDIPPPNIPSSSTDSEHSSLQN  
 70 80 90 100 110 120  
 NEQPSLATSSNQTSIQDEQPSDSFQGQAAQSGVWNDDSM LGPSQNF EAESIQDNAHMAEG  
 130 140 150 160 170 180  
 TGFYPSEPLLCSESVEGQVPHSLETLYQSADCS DANDALIVLIHLLMLES GYIPQGTEAK  
 190 200 210 220 230 240  
 ALSLPEKWKLSGVYKLQYMHHLCEGSSATLTCVPLGNLIVVNATLKINNEIRSVKRLQLL  
 250 260 270 280 290 300  
 PESFICKEKLGENVANIYKDLQKLSRLFKDQLVYPLLAFT RQALNLPNVFGLVVLPLELK  
 310 320 330 340 350 360  
 LRIFRLLDVRSVLSLSAVCRDLFTASNDPLLWRFLYLRDFRDNTVRVQD TDWKELYRKRH  
 370 380 390 400 410 420  
 IQRKESPKGRFVLLLPSSTHTIPFYPNPLHPRFPSSRLPPGIIGGEYDQRPTLPYVGDP  
 430 440 450 460 470 480  
 ISSLIPGPGETPSQLPPLRPRFDPVGPLPGPNPILPGRGGPNDRFPFRPSRGRPTDGRLS  
 FM

FIG. 10A

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10 20 30 40 50 60 70 80 90  
TGGAAATCCCATGGACCATGTCTAATACCCGATTTACAATTACATTGAACTACAAGGATCCCCTCACTGGAGATGAAGAGACCTTGGCTTCATA  
100 110 120 130 140 150 160 170 180  
TGGGATGTTTCTGGGGACTTGATATGTTTGATTCTTCACGATGACATTCCACCGCTAATATACCTTCATCCACAGATTCCAGAGCATTCCTTCA  
190 200 210 220 230 240 250 260 270 280  
CTCCAGAACAATGAGCAACCCCTCTTTGGCCACCAGCTCCAAATCAGACTAGCATACAGGATGAACAACCAAGTGATTTCATTCOAAGGACAGGCAG  
290 300 310 320 330 340 350 360 370  
CCCAGTCTGGTGTGTTGGAATGACGACAGTATGTTAGGGCTAGTCAAAATTTTGAAGCTGAGTCAATTCAAGATAATGCGCATATGGCAGAGGG  
380 390 400 410 420 430 440 450 460 470  
CACAGGTTTCTATCCCTCAGAACCCTGCTCTGTAGTGAATCGGTGGAAGGGCAAGTGCCACATTTCATTAGAGACCTTGTATCAATCAGCTGAC  
480 490 500 510 520 530 540 550 560  
TGTTCATGATGCAATGATGCGTTGATAGTGTGATACATCTTCTCATGTTGGAATCAGGTTACATACCTCAGGGCACCAGCAAAAGCACTGT  
570 580 590 600 610 620 630 640 650  
CCCTGCCGAGAAAGTGAAGTTGAGCGGGGTGATAAGCTGCAGTACATGCATCATCTCTGCGAGGGCAGCTCCGCTACTCTCACCTGTGTGCC  
660 670 680 690 700 710 720 730 740 750  
TTTGGGAAACCTGATTGTTGTAATGCTACACTAAAAATCAACAATGAGATTAGAAGTGTGAAGATTGCAGCTGCTACCAGAATCTTTTATT  
760 770 780 790 800 810 820 830 840  
TGCAAGAGAACTAGGGGAAATGTAGCCAACATATACAAGATCTTCAGAAACTCTCTCGCTCTTTAAAGACCAGCTGGTGTATCTCTCTTC  
850 860 870 880 890 900 910 920 930 940  
TGGCTTTTACCCGACAAGCACTGAACCTACCAATGTATTTGGGTGGTCTCTCCCATTTGGAACAGAACTACGGATCTTCCGACTTCTGGA  
950 960 970 980 990 1000 1010 1020 1030  
TGTTCGTTCGCTCTGTCTTTGTCGCGGTTTGTGCTGACCTCTTACTGCTTCAAATGACCCACTCTGTGGAGGTTTTTATATCTGCGTGAT  
1040 1050 1060 1070 1080 1090 1100 1110 1120  
TTTCGAGACAATACTGTGAGATTCAAGACACAGATTGGAAGAACTGTACAGGAAGAGGCACATACAAAGAAAAGAAATCCCCGAAAGGGCGGT  
1130 1140 1150 1160 1170 1180 1190 1200 1210 1220  
TTGTGCTGCTCTCCATCGTCAACCCACACCATTCATCTATCCCAACCCCTTGACCCCTAGGCCATTTCCTAGCTCCCGCTTCTCTCCAGG  
1230 1240 1250 1260 1270 1280 1290 1300 1310  
AATTATCGGGGGTGAATATGACCAAGACCAACACTTCCCTATGTTGAGAGCCCAATCAGTTCATTCATTCCTGGTCTGGGGAGAGCGCCAGC  
1320 1330 1340 1350 1360 1370 1380 1390 1400 1410  
CAGTTACCTCCACTGAGACCACGCTTTGATCCAGTTGGGCCACTTCCAGGACCTAACCCCATCTTGCCAGGGCGAGGCGGCCCAATGACAGAT  
1420 1430 1440 1450 1460 1470 1480 1490 1500  
TTCCCTTTAGACCCAGCAGGGGTGCGCCAACTGATGGCGCTGTTCATTGATGATTGATTGTAATTTCAATTTCTGGAGCTCCATTTGTTTT  
1510 1520 1530 1540 1550 1560 1570 1580 1590  
TGTTTCTAAACTACAGATGTCACTCCTTGGGGTGTGATCTCGAGTGTATTTCTGATTGTTGTTGAGAGTTGCACTCCAGAAACCTTTT  
1600 1610 1620 1630 1640 1650 1660 1670 1680 1690  
AAGAGATACATTTATAGCCCTAGGGGTGGTATGACCCAAAGGTTCTCTGTGACAAGGTTGGCCTTGGGAATAGTTGGCTGCCAATCTCCCTGC  
1700 1710 1720 1730 1740 1750 1760  
TCTTGGTTCTCCTCTAGATTGAAGTTTGTCTGATGCTGTTCTTACCAGATTAAAAAAGTGTAAATT

FIG. 10B

10 20 30 40 50 60  
 ETSKLG\*SAVLAPAAGGTLSEGRSAVSGILIAVTSTGVDK\*SLNQLLHGLGTSSRSLSHF  
 70 80 90 100 110 120  
 PFG\*KSPPRGQFVAAAVEIAGRSGLQMGQGLWRVVRNQQLQQEGYSEQGYLTREQSRRMA  
 130 140 150 160 170 180  
 ASNISNTNHRKQVQGGIDIIYHLLKARKSKEQEGFINLEMLPPELSFTILSYLNATDLCLA  
 190 200 210 220 230 240  
 SCVWQDLANDELLWQGLCKSTWGHCSIYNKNPPLGFSFRKKYMLDEGSLTFNANPDEGV  
 250 260 270 280 290 300  
 NYFMSKGILDDSPKEIAKFIFCTRNLNWKRLRIYLDERRDVLDDLVTLHNFRNQFLPNAL  
 310 320 330 340 350 360  
 REFFRHIHAPEERGEYLETLITKFSHRFCACNPDLRELGLSPDAVYVLCYSLILLSIDL  
 370 380 390 400 410 420  
 TSPHVKNKMSKREFIRNTRRAAQNISEDFVGHLYDNIYLIHVAA\*KAQLLGLQFLLQTK  
 430 440 450 460 470 480  
 ATQGLSRYGGYISAGHCSLSIQSSFSVQPFLLPFSILVISLGN\*IILQNFS\*FCLSRFA  
 490 500 510 520 530 540  
 QSRATV\*HSC\*RMIN\*HYTLKDGVFVH\*ICLNFIHFHSLYKYHVMCTYLTKEIYSHNYF  
 550 560 570 580 590 600  
 IVKILTKVFPFLSN\*VLKFI\*F\*SETIVXVKVRSDFRQKPIPASFSFKL\*RVLICYYITM  
 610 620 630 640 650  
 QNWQLFL\*YKFII\*FFILKTGLIKSR\*VL\*TI\*DF\*NIKIYDLHS\*E\*NKIXLELW

FIG. 11A

10 20 30 40 50 60 70 80 90  
 GGAAACGTCAAAATTGGGATAGTCGGCAGTTCTGCCCCCTGCAGCTGGAGGTACCCTGAGTTCTGAGGGTCGTAGTGTCTTCTGGTATTCTC  
 100 110 120 130 140 150 160 170 180  
 ATCGCGGTCACTCTACCGGTGTGGACAAGTAAAGTTTGAATCAGCTTCTCCATGGCTGGGCACCAGTTCCCGGCTGAGCCATTTCTCTTTTG  
 190 200 210 220 230 240 250 260 270 280  
 GCTAAAAGTCCCGCCAGAGGCCAATTCTGTCGGCGCGCGGTGGAGATCGCAGGTGCTCAGGCTTGCAGATGGTCAAGGGTTGTGGAGAGT  
 290 300 310 320 330 340 350 360 370  
 GGTGAGAAACCCAGCTGCAACAAGAGGCTACAGTGAGCAAGGCTACCTCACCAGAGAGCAGAGCAGGAGAATGGCTGCGAGCAACATTTCT  
 380 390 400 410 420 430 440 450 460 470  
 AACACCAATCATCTAAACAAGTCCAAGGAGGCAATTGACATATATCATCTTTTGAAGGCAAGGAAATCGAAAGAACAGGAGGATTTCATTAATT  
 480 490 500 510 520 530 540 550 560  
 TGGAAATGTTGCTCTGAGCTAAGCTTTACCATCTGTCTACCTGAATGCAACTGACCTTTGCTTGGCTTCATGTGTTGGCAGGACCTTGC  
 570 580 590 600 610 620 630 640 650  
 GAATGATGAACCTTCTCTGGCAAGGGTTGTGCAAAATCCACTTGGGGTCACTGTTCCATATACAATAAGAACCCACCTTTAGGATTTTCTTTTGA  
 660 670 680 690 700 710 720 730 740 750  
 AAAKTGTATATGCAGCTGGATGAAGGCAGCCTCACCTTTAATGCCAACCCAGATGAGGGAGTGAACCTACTTTATGTCCAAGGGTATCTCTGGATG  
 760 770 780 790 800 810 820 830 840  
 ATTGCCCCAAAGGAATAGCAAGTTTATCTTCTGTACAAGAACTAAATTTGGAAGAACTGAGAATCTATCTTGTGAAGGAGAGATGTCTT  
 850 860 870 880 890 900 910 920 930 940  
 GGATGACCTTGTAACTTGCATAATTTTAGAAATCAGTTCTTGGCAAATGCACTGAGAGAATTTTTTCGTATATCCATGCCCTGAAGAGCGT  
 950 960 970 980 990 1000 1010 1020 1030  
 GGAGAGTATCTTGAAACTCTTATAACAAGTTCTCACATAGATTCTGTGCTTGCAACCCCTGATTTAATGGGAGAACTTGGCCTTAGTCTCTGATG  
 1040 1050 1060 1070 1080 1090 1100 1110 1120  
 CTGTCATGTACTGTCTACTCTTTGATTCTACTTTCCATTGACCTCACTAGCCCTCATGTGAAGAATAAAATGTCAAAAAGGGAATTTATTCTG  
 1130 1140 1150 1160 1170 1180 1190 1200 1210 1220  
 AAATACCCGTCGCGTGTCTCAAAATATTAGTGAAGATTTGTAGGGCATCTTTATGACAATATCTACCTTATTGGCCATGTGGCTGCATAAAAA  
 1230 1240 1250 1260 1270 1280 1290 1300 1310  
 GCACAATTGCTAGGACTTCAGTTTCTTACCTTCAGACTAAAGCTACCCAAGGACTTAGCAGATATGGGGTTACATCAGTCTGGTCATTGTAGCC  
 1320 1330 1340 1350 1360 1370 1380 1390 1400 1410  
 TGAGTATACAATCAAGCTTCAGTGTGCAACCTTTTTTCTTTTGCCATTTTCTATTTTAGTAATTTCTTGGGAACTAAATAATTTTGCAGAA  
 1420 1430 1440 1450 1460 1470 1480 1490 1500  
 TTTTCTCTAATTTTGTATTATCAGCTTTTGCACAAGCAGAGCCACTGTCTAACACAGCTGTTAACGAATGATAAACTGACATTATACTCTAAAA  
 1510 1520 1530 1540 1550 1560 1570 1580 1590  
 GATGGTGTATTGTGTCATTAGATTTGCCCTGAAAACTTTATCCATTTCATTCTTTATACAAATACCATGTAATGTGTACATATTAACTAAAG  
 1600 1610 1620 1630 1640 1650 1660 1670 1680 1690  
 AGATTATAGTCATAATTATTTTATGTAAAGATTTTAACTAAAGTTTTCCTTTTCTCTCAAAGTGAAGTTCTGAAATTTATTGATTCTGATC  
 1700 1710 1720 1730 1740 1750 1760 1770 1780  
 TGAAACTATTGTCTYCGTAAAGTTAGATCTGACTTCAGRCAGAAACCAATACCAGCTTCTCTTTTAACTTTGAAGAGTGTGATTGTTGT  
 1790 1800 1810 1820 1830 1840 1850 1860 1870 1880  
 TACTATATTACTATGCAAACTGGCAGTTATTTTATAATATAAATTTATAATTGATTTTATTTTAAAACTGGGTTAATCAAGTCTCGGT  
 1890 1900 1910 1920 1930 1940 1950 1960 1970  
 AAGTCTCTTAAACCATTTAGGATTTTAAACATCAAAATTTATGATTACATTCATAGGAATAAAATAAAATATYATTAGAACTCTGGT

FIG. 11B

10 20 30 40 50 60  
MAAAVDSAMEVVPALAEBAPEVAGLSCLVNLPGEVLEYILCCGSLTAADIGRVSSSTCR

70 80 90 100 110 120  
RLRELCQSSGKVWKEQFRVRWPSLMKHYSPTDYVNWLEEKVRQKAGLEARKIVASFSCR

130 140 150 160 170 180  
FFSEHVPCNGFSDIENLEGPEIFFEDELVCILNMEGRKALTWKYAKKILYYLRQQKILN

190 200 210 220 230 240  
NLKAFLQQPDDYESYLEGAVYIDQYCNPLSDISLKDIQAQIDSIVELVCKTLRGINSRHP

250 260 270 280 290 300  
SLAFKAGESSMIMEIELQSQVLDAMNYVLYDQLKFKGNRMDYYNALNLYMHQVLIIRRTGI

310 320 330 340 350 360  
PISMSLLYLTARQLGVPLEPVNFP SHFLLRWCQGAEGATLDIFDYIYIDAFGKGKQLTV

370 380 390 400 410 420  
KECEYLIGQHVTAAALYGVVNVKKVLQRMVGNLLSLGKREGIDQSYQLLRDSL DLYLAMYP

430 440 450 460 470 480  
DQVQLLLLQARLYFHLGIWPEKVL DILQHIQTLDPGQHGA VG YLVQHTLEHIERKKEEVG

490 500 510 520 530 540  
VEVKLRSDEKHRDVCYSIGLIMKHKRYGYNCVIYGDPTCMMGHEWIRNMNVHSLPHGHH

550 560 570 580 590 600  
QPFYNVLVEDGSCRYAAQENLEYNVEPQEISHPDVG RYFSEFTGTHYIPNAELEIRYPED

610 620  
LEFVYETVQNIYSAKKENIDE

FIG. 12A

[illegible]

FIG. 12B

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10	20	30	40	50	60
RSTGFRRAGEEWSR*XLAASPGXLRRPAXTFVLSNLAEVVERVLTFLPAKALLRVACVCR					
70	80	90			
LWRECVRRVLRTHRSVTWISAGLAEAGHLXGH					

FIG. 13A

10 20 30 40 50 60  
CCGTAGTACTGGNTTCCGGCGGGCTGGTGAGGAATGGAGCCGGTAGNTGCTTGCGGCGAG

70 80 90 100 110 120  
TCCCGGGNTCCTCCGTAGACCCGCGGANACCTTCGTGTTGAGTAACCTGGCGGAGGTGGT

130 140 150 160 170 180  
GGAGCGTGTGCTCACCTTCCTGCCCCGCAAGGCGTTGCTGCGGGTGGCCTGCGTGTGCCG

190 200 210 220 230 240  
CTTATGGAGGGAGTGTGTGCGCAGAGTATTGCGGACCCATCGGAGCGTAACCTGGATCTC

250 260 270  
CGCAGGCCTGGCGGAGGCCGCCACCTGGNGGGGCATT

FIG. 13B



1004241 01070

10 20 30 40 50 60  
RPRFVQQQQQQPPQQPPPPQQPPQQPPPPPPQQQQQQPPPPPPPPPPPLPQERNNVG

70 80 90 100 110 120  
ERDDDVPAADMVAEESGPGAQNSPYQLRRKTLLPKRTACPTKNSMEGASTSTTENFGHRAK

130 140 150 160 170 180  
RARVSGKSQDLSAAPAEQYLQEKL PDEVVLKIFSYLLEQDLCRAACVCKRFSELANDPNL

190  
WKRLYMEVF EYTRPMMH

FIG. 14A

10 20 30 40 50 60  
GCGGGCCGCGCCCGGTGCAGCAACAGCAGCAGCAGCCCCCGCAGCAGCCGCGCCGCGCAGCC

70 80 90 100 110 120  
GCCCCAGCAGCAGCCGCCCCAGCAGCAGCCTCCGCGCCGCGCCGAGCAGCAGCAGCAGCA

130 140 150 160 170 180  
GCAGCCTCCGCGCCGCCACCGCCGCTCCGCGCTGCCTCAGGAGCGGAACAACGTCGG

190 200 210 220 230 240  
CGAGCGGGATGATGATGTGCCTGCAGATATGGTTGCAGAAGAATCAGGTCCTGGTGCACA

250 260 270 280 290 300  
AAATAGTCCATACCAACTTCGTAGAAAACCTCTTTTGCCGAAAAGAACAGCGTGTCCAC

310 320 330 340 350 360  
AAAGAACAGTATGGAGGGCGCCTCAACTTCAACTACAGAAAACCTTTGGTCATCGTGCAA

370 380 390 400 410 420  
ACGTGCAAGAGTGTCTGGAAAATCACAAGATCTATCAGCAGCACCTGCTGAACAGTATCT

430 440 450 460 470 480  
TCAGGAGAACTGCCAGATGAAGTGGTCTAAAAATCTTCTCTTACTTGCTGGAACAGGA

490 500 510 520 530 540  
TCTTTGTAGAGCAGCTTGTGTATGTAAACGCTTCAGTGAACCTTGCTAATGATCCCAATTT

550 560 570 580 590  
GTGGAAACGATTATATATGGAAGTATTTGAATATACTCGCCCTATGATGCAT

FIG. 14B

204070 242400F

10	20	30	40	50	60
RPRPGLRGGRAPCEVTMEAGGLPLELWRMILAYLHLPDLGRCSLVCRAWYELILSLDSTR					
70	80	90	100	110	120
WRQLCLGCTECRHPNWPNQPDVEPESWREAFKQHYLASKTWTKNALDLESSICFSLFRRR					
130	140	150	160	170	
RERRTL SVGPGREFDSLGSALAMASLYDRIVLFPGVYEEQGEIILKVPVEIVGQGKLG					

FIG. 15A

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10	20	30	40	50	60
GCGGCCGCGGCCCGGACTCCGCGGTGGGCGAGCGCCCTGTGAGGTGACCATGGAGGCTGG					
70	80	90	100	110	120
TGGCCTCCCCCTGGAGCTGTGGCGCATGATCTTAGCCTACTTGACACCTTCCCGACCTGGG					
130	140	150	160	170	180
CCGCTGCAGCCTGGTATGCAGGGCCTGGTATGAACTGATCCTCAGTCTCGACAGCACCCG					
190	200	210	220	230	240
CTGGCGGCAGCTGTGTCTGGGTTGCACCGAGTGCCGCCATCCAATTGGCCCAACCAGCC					
250	260	270	280	290	300
AGATGTGGAGCCTGAGTCTTGGAGAGAAGCCTTCAAGCAGCATTACCTTGCATCCAAGAC					
310	320	330	340	350	360
ATGGACCAAGAATGCCTTGGACTTGGAGTCTTCCATCTGCTTTTCTCTATTCCGCCGGAG					
370	380	390	400	410	420
GAGGGAACGACGTACCCTGAGTGTGGGCCAGGCCGTGAGTTTGACAGCCTGGGCAGTGC					
430	440	450	460	470	480
CTTGCCCATGGCCAGCCTGTATGACCGAATTGTGCTCTTCCCAGGTGTGTACGAAGAGCA					
490	500	510	520	530	
AGGTGAAATCATCTTGAAGGTGCCTGTGGAGATTGTAGGGCAGGGGAAGTTGGGTGA					

FIG. 15B

10 20 30 40 50 60  
ETETAPLTLES LPTDPLLLILSFLDYRDLINCCYVSRRLSQLSSH DPLWRRHCKKYWLIS  
70 80 90 100 110 120  
EEETQKNQCWKS LFDITYSDVGRYIDHYAAIKKASGMISRNIWSPGV LGWVLSLKEGCS  
130 140 150 160 170 180  
RGRPRCCGSADWAASFLDDYRCSYRIHNGQKL VGSWGYWEAWHCLITIVLKIC\*TSIQLP  
190 200 210 220 230 240  
EIPAETGTEILSPFNFCIHTGLSQYIAVEAAEG\*NKNEVFYQCQTVERVFKYGIKMCSDG  
250  
CINGMH\*VFS

FIG. 16A

10 20 30 40 50 60  
GAGACCGAGACGGCGCCGCTGACCCTAGAGTCGCTGCCCCACCGATCCCCTGCTCCTCATC

70 80 90 100 110 120  
TTATCCTTTTTGGACTATCGGGATCTAATCAACTGTTGTTATGTCAGTCGAAGATTAAGC

130 140 150 160 170 180  
CAGCTATCAAGTCATGATCCGCTGTGGAGAAGACATTGCAAAAAATACTGGCTGATATCT

190 200 210 220 230 240  
GAGGAAGAGAAAACACAGAAGAATCAGTGTTGGAAATCTCTCTTCATAGATACTTACTCT

250 260 270 280 290 300  
GATGTAGGAAGATACATTGACCATTATGCTGCTATTAAAAAGGCCTCGGGAATGATCTCA

310 320 330 340 350 360  
AGAAATATTTGGAGCCCAGGTGTCCTCGGATGGGTTTTATCTCTGAAAGAGGGGTGCTCG

370 380 390 400 410 420  
AGAGGAAGACCTCGATGCTGTGGAAGCGCAGATTGGGCTGCAAGTTTCCTGGACGATTAT

430 440 450 460 470 480  
CGATGTTTCATACCGAATTACAAATGGACAGAAGTTAGTTGGTTCCTGGGGTTATTGGGAA

490 500 510 520 530 540  
GCATGGCACTGTCTAATCACTATCGTTCTGAAGATTTGTTAGACGTCGATACAGCTGCCG

550 560 570 580 590 600  
GAGATTCCAGCAGAGACAGGGACTGAAATACTGTCTCCCTTTAACTTTTGCATACATACT

610 620 630 640 650 660  
GGTTTGAGTCAGTACATAGCAGTGGAAGCTGCAGAGGGTTGAAACAAAAATGAAGTTTTC

670 680 690 700 710 720  
TACCAATGTCAGACAGTAGAACGTGTGTTTAAATATGGCATTAAAGATGTGTTCTGATGGT

730 740 750  
TGTATAAATGGCATGCATTAGGTATTTTCAG

FIG. 16B

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10 20 30 40 50 60  
GSGFRAGGWPLTMPGKHQHFQEPEVGCCGKYFLFGFNIVFWVLGALFLAIGLWAWGEKGV  
70 80 90 100 110 120  
LSNISALTDLGGLDPVWLVCGSWRRHVAGLCWAAIGALRENTFLLKFFXXFLGLIFFLE  
LA

FIG. 17A

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10	20	30	40	50	60
GGCTCCGGTTTCGGGGCCGGCGGGTGGCCGCTCACCATGCCCGGNAAGCACCAGCATTTTC					
70	80	90	100	110	120
CAGGAACCTGAGGTCGGCTGCTGCGGGAAATACTTCCTGTTTGGCTTCAACATTGTCTTC					
130	140	150	160	170	180
TGGGTGCTGGGAGCCCTGTTCTCTGGCTATCGGCCTCTGGGCCTGGGGTGAGAAGGGCGTT					
190	200	210	220	230	240
CTCTCGAACATCTCAGCGCTGACAGATCTGGGAGGCCTTGACCCCGTGTGGCTTGTCTTGT					
250	260	270	280	290	300
GGTAGTTGGAGGCGTCATGTCGGTGCTGGGCTTTGCTGGGCTGCAATTGGGGCCCTCCGG					
310	320	330	340	350	360
GAGAACACCTTCCTGCTCAAGTTTTTCTNCGNGTTCCTCGGTCTCATCTTCTTCCTGGAG					
CTGGCAAC					

FIG. 17B



10 20 30 40 50 60  
AAAAAYLDELPEPLLLRVLAALPAAELVQACRLVCLRWKELVDGAPLWLLKCQQEGLVP  
70 80 90 100 110 120  
EGGVEEERDHWQQFYFLSKRRRNLLRNPCGEEDLEGWCDVEHGGDGWRVEELPGDSGVEF  
130 140 150 160 170 180  
THDESVKKYFASSFEWCRKAQVIDLQAEGYWEELDDTTQPAIVVKDWYSGRSDAGCLYEL  
190 200 210 220 230 240  
TVKLLSEHENVLAEFSSGQVAVPQSDGGGWMEISHTFTDYGPGVRFVRFHGGQGSVYW  
250  
KGWFGARVTNSSVWVEP\*

FIG. 18A

100441 01022  
2020T0" 4H2400T

10 20 30 40 50 60  
GCGGCGGCCGCCGCCGCTACCTGGACGAGCTGCCCCGAGCCGCTGCTGCTGCGCGTGTGGCCGCACTG

70 80 90 100 110 120 130  
CCGGCCGCCGAGCTGGTGCAGGCCTGCCGCCTGGTGTGCCTGCGCTGGAAGGAGCTGGTGGACGGCGCC

140 150 160 170 180 190 200  
CCGCTGTGGCTGCTCAAGTGCCAGCAGGAGGGGCTGGTGCCGAGGGCGGCGTGGAGGAGGAGCGCGAC

210 220 230 240 250 260 270  
CACTGGCAGCAGTTCTACTTCCTGAGCAAGCGGCGCCGCAACCTTCTGCGTAACCCGTGTGGGGAAGAG

280 290 300 310 320 330 340  
GACTTGGAAGGCTGGTGTGACGTGGAGCATGGTGGGGACGGCTGGAGGGTGGAGGAGCTGCCTGGAGAC

350 360 370 380 390 400 410  
AGTGGGGTGGAGTTCACCCACGATGAGAGCGTCAAGAAGTACTTCGCCTCCTCCTTTGAGTGGTGTTCGC

420 430 440 450 460 470 480  
AAAGCACAGGTCATTGACCTGCAGGCTGAGGGCTACTGGGAGGAGCTGCTGGACACGACTCAGCCGGCC

490 500 510 520 530 540 550  
ATCGTGGTGAAGGACTGGTACTCGGGCCGACGACGCTGGTTGCCTCTACGAGCTCACCGTTAAGCTA

560 570 580 590 600 610 620  
CTGTCCGAGCACGAGAACGTGCTGGCTGAGTTCAGCAGCGGGCAGGTGGCAGTGCCCCAAGACAGTGAC

630 640 650 660 670 680 690  
GGCGGGGGCTGGATGGAGATCTCCACACCTTCACCGACTACGGGCGGGCGTCCGCTTCGTCCGCTTC

700 710 720 730 740 750  
GAGCACGGGGGGCAGGGCTCCGTCTACTGGAAGGGCTGGTTCGGGGCCCGGGTGACCAACAGCAGCGTG

760 770  
TGGGTAGAACCCTGA

FIG. 18B

10 20 30 40 50 60  
MGEKAVPLLRRRRVKRSCPCSGSELGVEEKRKGNPISIQLFPPPELVEHIISFLPVRDLV  
70 80 90 100 110 120  
ALGQTCRYFHEVCDGEGVWRRICRRLSPRLQDQDTKGLYFQAFGGRRRCLSKSVAPLLAH  
130 140 150 160 170 180  
GYRRFLPTKDHVFILDYVGTLLFFLKNALVSTLGQMOWKRACRYVVLCRGAKDFASDPRCD  
190 200 210 220 230 240  
TVYRKLYVLATREPQEVVGTSSRACDCVEVYLQSSGQRVFKMTFHHSMTEFKQIVLVGQ  
250 260 270 280 290 300  
ETQRALLLLTEEGKIYSLVVNETQLDQPRSYTVQLALRKVSHYLPFLRVACMTSNQSSTL  
310  
YVTDPILCSWLQPPWPGG

FIG. 19A

10 20 30 40 50 60  
ATGGGCGAGAAGGCGGTCCCTTTGCTAAGGAGGAGGCGGGTGAAGAGAAGCTGCCCTTCTTGTGGCTCG  
70 80 90 100 110 120 130  
GAGCTTGGGGTTGAAGAGAAGAGGGGGAAGGAAATCCGATTTCCATCCAGTTGTTCCCCCAGAGCTG  
140 150 160 170 180 190 200  
GTGGAGCATATCATCTCATTTCTCCAGTCAGAGACCTTGTGGCCCTCGGCCAGACCTGCCGCTACTTC  
210 220 230 240 250 260 270  
CACGAAGTGTGCGATGGGGAAGGCGTGTGGAGACGCATCTGTGCGAGACTCAGTCCGCGCCTCCAAGAT  
280 290 300 310 320 330 340  
CAGGACACGAAGGCGCTGTATTTCAGGCATTTGGAGGCCCGCCGATGTCTCAGCAAGAGCGTGGCC  
350 360 370 380 390 400 410  
CCCTTGCTAGCCACGGCTACCGCGCTTCTTGCCACCAAGGATCACGTCTTCATTCTTGACTACGTG  
420 430 440 450 460 470 480  
GGGACCTCTTCTTCCTCAAAATGCCCTGGTCTCCACCTCGGCCAGATGCAGTGAAGCGGGCCTGT  
490 500 510 520 530 540 550  
CGCTATGTTGTGTGTGTCGTGGAGCCAAGGATTTGCGCTCGGACCCAAGGTGTGACACAGTTTACCGT  
560 570 580 590 600 610 620  
AAATACCTCTACGTCTTGGCCACTCGGGAGCCGCAGGAAGTGGTGGGTACCACCAGCAGCCGGGCGCTGT  
630 640 650 660 670 680 690  
GACTGTGTTGAGGTCTATCTGCAGTCTAGTGGGCAGCGGGTCTTCAAGATGACATTCCACCACTCAATG  
700 710 720 730 740 750  
ACCTTCAAGCAGATCGTGCTGGTTGGTCAGGAGACCCAGCGGGCTCTACTGCTCCTCACAGAGGAAGGA  
760 770 780 790 800 810 820  
AAGATCTACTCTTTGGTAGTGAATGAGACCCAGCTTGACCAGCCACGCTCCTACACGGTTCAGCTGGCC  
830 840 850 860 870 880 890  
CTGAGGAAGGTGTCCCACTACCTGCCTCACCTGCGCGTGGCCTGCATGACTTCCAACCAGAGCAGCACC  
900 910 920 930 940 950  
CTCTACGTCACAGATCCTATTCTGTGCTCTTGGCTACAACCACCTTGGCCTGGTGGATGA

FIG. 19B

10 20 30 40 50 60  
RGGSEGRGRGREKRARGARRKRKQGGREARAADGEGGSGPGAEGARTRPREEAEGGGSV

70 80 90 100 110 120  
EEGARGIIKGDGSGVAGKEAQGRKYGKEEWRVRARRREGARPGRVQGGQVWAYIPGT

130 140 150 160 170 180  
GAAMAAAAREEEEEAARESAACPAGPALWRLPEVLLLHMC SYLDMRALGRLAQVYRWLW

190 200 210 220 230 240  
HFTNCDLLRRQIAWASLNSGFTRLGTNLMTSVPVKVSQNWIVGCCREGILLKWRC SQMPW

250 260 270 280 290 300  
MQLEDDALYISQANFILAYQFRPDGASLNRQPLGVSAGHDEDVCHFVLATSHIVSAGGDG

310 320 330 340 350 360  
KIGLGKIHSTFAAKYWAHEQEVNCVDCKGGIISFGSRDRTAKVWPLASGQLGQCLYTIQT

370 380 390 400 410 420  
EDQIWSVAIRPLLSSFVTGTACCGHFSPLKIWDLNSGQLMTHLDRDFPPRAGVLDVIYES

430 440 450 460 470 480  
PFALLSCGYDTYVRYWDCRTSVRKCVMEWEEPHNSTLYCLQTDGNHLLATGSSFYSVVRL

490 500 510 520 530  
WDRHQRACPHTFPLTSTRLGSPVYCLHLTTKHLAALSYNLHVLDIQNP\*

FIG. 20A

10 20 30 40 50 60 70 80 90  
CGAGGGGGAAGCGAAGGAAGGGGAAGGAAAGCGAGCGAGAGGGGCAAGGCGGAAGAGGAAGCAGGGCGGAAGGGGAAGCCCGGGCCG

100 110 120 130 140 150 160 170 180  
CAGACGGCGAAGGAGGCGAGCGGGCCGGGGGCTGAGGCGGGAGCGAGGACACGCCCAAGAGAGGAAGCAGAGGGAGGCGGAAGCGTGGAGGAAGG

190 200 210 220 230 240 250 260 270 280  
GGCGAGAGGCATCATCAAGGAGATGAGGGGAGCGTAGGGGCCGGAAAGAGGCACAAGGAAGAAAGTATGGGAAGGAGGAATGGAGGGTCAGG

290 300 310 320 330 340 350 360 370  
GCTAGGCGGGGAGGGGCCAGGCCGGGAAGAGTACAAGGACAAGGAGGTGAGTTTGGGCTACATCCCGGGGACAGGGGCGGCCATGGCGG

380 390 400 410 420 430 440 450 460 470  
CGGCAGCCAGGGAGGAGGAGGAGGAGGCGGCTCGGGAGTCAGCCGCCCTGCCCGGCTGCGGGGCGCAGCGCTCTGGCGCCTGCCGAAGTGTCTGCT

480 490 500 510 520 530 540 550 560  
GCTGCACATGTCTCTTACCTCGACATGCGGGGCCCTCGGCCCTGGCCAGGTGTACCGCTGGCTGTGGCACTTCACCAACTGCGACCTGCTC

570 580 590 600 610 620 630 640 650  
CGGGCGCCAGATAGCCTGGGCGCTCGCTCAACTCCGGCTTCACGCGGCTCGGCACCAACCTGATGACCAGTGTCCAGTGAAGGTGTCTCAGAACT

660 670 680 690 700 710 720 730 740 750  
GGATAGTGGGGTCTGCCGAGAGGGGATTCTGCTGAAGTGGAGATGCAGTTCAGATGCCCTGGATGCAGCTAGAGGATGATGCTTTGTACATATC

760 770 780 790 800 810 820 830 840  
CCAGGCTAATTTTCATCTGGCCTACCACTTCGCTCCAGATGGTGGCAGCTTGAACCGTCAGCCTCTGGGAGTCTCTGCTGGGCATGATGAGGAC

850 860 870 880 890 900 910 920 930 940  
GTTTGGCACTTTGTGCTGGCCACCTCGCATATTTGTGAGTGCAGGAGGAGATGGGAAGATTGGCCTTGGTAAGATTCACAGCACCTTCGCTGCCA

950 960 970 980 990 1000 1010 1020 1030  
AGTACTGGGCTCATGAACAGGAGGTGAAGTGTGTGGATTGCAAAGGGGCGATCATATCATTGGCTCCAGGGACAGGACGGCCAAGGTGTGGCC

1040 1050 1060 1070 1080 1090 1100 1110 1120  
TTTGGCTCAGGGCAGCTGGGGCAGTGTATATACACCATCCAGACTGAAGACCAAACTCTGGTCTGTTGCTATCAGGCCATTACTCAGCTCTTTT

1130 1140 1150 1160 1170 1180 1190 1200 1210 1220  
GTGACAGGGACGGCTTGTGTGGGCACTTCTCACCCCTGAAATCTGGGACCTCAACAGTGGGCGAGCTGATGACACACTTGGACAGAGACTTTC

1230 1240 1250 1260 1270 1280 1290 1300 1310  
CCCCAAGGGCTGGGGTGTGGATGTCATATATGAGTCCCTTTCCGACTGCTCTCTGTGGCTATGACACCTATGTTGCTACTGGGACTGCCG

1320 1330 1340 1350 1360 1370 1380 1390 1400 1410  
CACCAGTGTCCGGAAATGTGTCATGGAGTGGGAGGAGCCCAACAGCACCTGTACTGCCTGCAGACAGATGGCAACCACTTGCTTGGCACA

1420 1430 1440 1450 1460 1470 1480 1490 1500  
GGTTCTCTCTTATAGCGTTGTACGGCTGTGGGACGGCACCAAGGGCTGCCCGCACACCTTCCCGCTGACGTCGACCCGCTCGGCAGCC

1510 1520 1530 1540 1550 1560 1570 1580 1590  
CTGTGTACTGCGTCATCTCACCAAGCATCTCTATGCTGCGCTGTCTTACAACCTCCACGTCCTGGATATTCAAAACCCGTGA

FIG. 20B

10 20 30 40 50 60  
LILTSVLLFQRHGYCTLGEAFNRLDFSSAIQDIRTFNYVVKLLQLIAKSQLTSLSGVAQK

70 80 90 100 110 120  
NYFNILDKIVQKVLDDHHNPRLIKDLLQDLSSSTLCILIRGVGKSVLVGNINIWICRLETI

130 140 150 160 170 180  
LAWQQQLQDLQMTKQVNNGLTSLDLPLHMLNNILYRFSDGWDIITLGQVTPPTLYMLSEDR

190 200 210 220 230 240  
QLWKKLCQYHFAEKQFCRHLILSEKGHIEWKLMYFALQKHYPAKEQYGDTLHFCHCSIL

250 260 270  
FWKDSGHPCTAADPDSCFTPVSPQHFIDLFKF

FIG. 21A

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10 20 30 40 50 60  
GCATTGCTATAATTTTACTATACTCTCATCTAAATCTAAAATCAGTCTTCAAAATAAAAACAAATTGTC

70 80 90 100 110 120 130  
CTTTGCCAAAAATTTTTTAATCGCACAAATTAATTGACATTAAGTCCCAATCTTTTTGGCTAATTGAC

140 150 160 170 180 190 200  
TAATTTTAACTTCTGTGTGCTTTTCCAGAGGCATGGCTATTGCACCTTGGGAGAAGCCTTTAATCGGT

210 220 230 240 250 260 270  
TAGACTTCTCAAGTGCAATTCAAGATATCCGAACGTTCAATTATGTGGTCAAACCTGTTGCAGCTAATTG

280 290 300 310 320 330 340  
CAAAATCCCGAGTTAACTTCATTGAGTGGCGTGGCACAGAAGAATTACTTCAACATTTTGGATAAAATCG

350 360 370 380 390 400 410  
TTCAAAGGTTCTTGATGACCACCACAATCCTCGCTTAATCAAAGATCTTCTGCAAGACCTAAGCTCTA

420 430 440 450 460 470 480  
CCCTCTGCATTCTTATTAGAGGAGTAGGGAAGTCTGTATTAGTGGGAACATCAATATTGGATTGACC

490 500 510 520 530 540 550  
GATTAGAACTATTCTCGCCTGGCAACAACAGCTACAGGATCTTCAGATGACTAAGCAAGTGAACAATG

560 570 580 590 600 610 620  
GCCTCACCTCAGTGACCTTCCTCTGCACATGCTGAACAACATCCTATACCGGTTCTCAGACGGATGGG

630 640 650 660 670 680 690  
ACATCATCACCTTAGGCCAGGTGACCCCCAGTGTATATGCTTAGTGAAGACAGACAGCTGTGGAAGA

700 710 720 730 740 750  
AGCTTTGTGAGTACCATTTTGTGAAAAGCAGTTTGTAGACATTTGATCCTTTCAGAAAAAGGTCATA

760 770 780 790 800 810 820  
TTGAATGGAAGTTGATGTACTTTGCACTTCAGAAACATTACCCAGCGAAGGAGCAGTACGGAGACACAC

830 840 850 860 870 880 890  
TGCATTTCTGTCCGCACTGCAGCATTCTCTTTTGAAGGACTCAGGACAQCCCTGCACGGCGGCCGACC

900 910 920 930 940 950 960  
CTGACAGCTGCTTCACGCCTGTGTCTCCGCAGCACTTCATCGACCTCTTCAAGTTTAAAGGGCTGCCCC

970 980 990 1000 1010 1020 1030  
TGCCATCCCTATTGGAGATTGTGAATCCTGCTGTCTGTGCAGGGCTCATAGTGAGTGTTCTGTGAGGTG

1040 1050 1060 1070 1080 1090 1100  
GGTGGAGACTCCTCGGAAGCCCTGCTTCCAGAAAGCCTGGGAAGAACTGCCCTTCTGCAAAGGGGGGA

1110 1120 1130 1140 1150 1160 1170  
CTGCATGGTTGCATTTTCATCACTGAAAGTCAGAGGCCAAGGAATCATTCTACTTCTTTAAAACTC

1180 1190 1200 1210  
CTTCTAAGCATATTAAATGTGAAATTTTGGCTACTCTCTC

FIG. 21B

10042417 010702



10 20 30 40 50 60  
YGSEKGSSSSISSDVSSSTDHTPTKAQKNVATSESDLSMRTLSTPSPALICPPNLPGFQ  
70 80 90 100 110 120  
NGRGSSTSSSSITGETVAMVHSPPPTRLTHPLIRLASRPQKEQASIDRLPDHSMVQIFSF  
130 140 150 160 170 180  
LPTNQLCRCARVCRRWYNLAWDPRLWRTIRLTGETINVDRAKVLTRRLCQDTPNVCLML  
190 200 210 220 230 240  
ETVTVSGCRRLTDRGLYTIAQCCPELRRLEVSGCYNISNEAVFDVVS LCPNLEHLDVSGC  
250 260 270 280 290 300  
SKVTCISLTREASIKLSPLHGKQISIRYLDMTDCFVLEDEGLHTIAAHCTQLTHLYLRRC  
310 320 330 340 350 360  
VRLTDEGLRYLVIIYCASIKELSVSDCRFVSDFGLREIAKLESRLRYLSIAHCGRVTDVGI  
370 380 390 400 410 420  
RYVAKYCSKRLRYLNARGCEGITDHGVEYLAKNCTKLKSLDIGKCPLVSDTGLECLALNCF  
430 440 450 460 470 480  
NLKRLSLKSCESITGQGLQIVAANCFDLQTLNVQDCEVSVEALRFVKRHCKRCVIEHTNP

AFF

FIG. 22A

[illegible]

**FIG. 22B**

10 20 30 40 50 60  
AAAPAPAPAPTPTPEEGPDAGWGDRIPLEILVQIFGLLVAADGMPFPLGRAARVCRRWQE  
70 80 90 100 110 120  
AASQPALWHTVTLSSPLVGRPAKGGVKAEEKLLASLEWLMPNRFSQLQRLTLIHWKSQVH  
130 140 150 160 170 180  
PVLKLVGECCPRLTFLKLSGCHGVTADALVMLAKACCQLHSLDLQHSMVESTAVVSFLEE  
190 200 210 220 230 240  
AGSRMRKLWLTYSQTTAILGALLGCCPQLQVLEVSTGINRNSIPLQLPVEALQKGCPO  
250 260 270 280  
LQVLRLLNLMWLPKPPGRGVAPGPGFPSLEELCLASSTCNFVS

FIG. 23A

10 20 30 40 50 60  
TGCGGGCGCGCCCGCACCCGCACCCGCACCCACGCCACGCCGAGGAAGGGCCCGACGCGGGCTGGGG

70 80 90 100 110 120 130  
AGACCGCATTCCTTGGAAATCCTGGTGCAGATTTTCGGGTGTGTTGGTGGCGGCGGACGGCCCCATGCC

140 150 160 170 180 190 200  
CTTCCTGGGCAGGGCTGCGCGCGTGTGCCGCCGCTGGCAGGAGGCCGCTTCCCAACCCGCGCTCTGGCA

210 220 230 240 250 260 270  
CACCGTGACCTGTCGTCCCCGCTGGTCCGCCGCGCTGCCAAGGGCGGGGTCAAGGCGGAGAAGAAGCT

280 290 300 310 320 330 340  
CCTTGCTTCCCTGGAGTGGCTTATGCCCAATCGGTTTTTCACAGCTCCAGAGGCTGACCCCTCATCCACTG

350 360 370 380 390 400 410  
GAAGTCTCAGGTACACCCCGTGTTGAAGCTGGTAGGTGAGTGCTGTCCTCGGCTCACTTTCCTCAAGCT

420 430 440 450 460 470 480  
CTCCGGCTGCCACGGTGTGACTGCTGACGCTCTGGTCATGCTAGCCAAAGCCTGCTGCCAGCTCCATAG

490 500 510 520 530 540 550  
CCTGGACCTACAGCACTCCATGGTGGAGTCCACAGCTGTGGTGAGCTTCTTGGAGGAGGCAGGGTCCCCG

560 570 580 590 600 610 620  
AATGCGCAAGTTGTGGCTGACCTACAGCTCCCAGACGACAGCCATCCTGGGCGCATTGCTGGGCAGCTG

630 640 650 660 670 680 690  
CTGCCCCCAGCTCCAGGTCCCTGGAGGTGAGCACCGGCATCAACCGTAATAGCATTCCCCTCAGCTGCC

700 710 720 730 740 750  
TGTCGAGGCTCTGCAGAAAGGCTGCCCTCAGCTCCAGGTGCTGCGGCTGTTGAACCTGATGTGGCTGCC

760 770 780 790 800 810 820  
CAAGCCTCCGGGACGAGGGGTGGCTCCCGGACCAGGCTTCCCTAGCCTAGAGGAGCTCTGCCTGGCGAG

830 840 850  
CTCAACCTGCAACTTTGTGAGC

FIG. 23B

10 20 30 40 50 60  
 QHCSQKDTAELLRGLSLWNHAEERQKFFKYSVDEKSDKEAEVSEHSTGITHLPPEVMLSI  
 70 80 90 100 110 120  
 FSYLNPQELCRCSQVSMKWSQLTKTGS LWKHLYPVHWARGDWYSGPATELDTEPDDEWVK  
 130 140 150 160 170 180  
 NRKDESRAFHEWDEDADIDEESESAEESIAISIAQMEKRLHGLIHNVLPIVGTSTVKTIV  
 190 200 210 220 230 240  
 LAYSSAVSSKMVRQILELCPNLEHLDLTQTDISDSAFDSWSWLGCCQSLRHLDLSGCEKI  
 250 260 270 280 290 300  
 TDVALEKISRALGILTSHQSGFLKTSTSKITSTAWKNKDITMQSTKQYACLHDLTNKGIG  
 310 320 330 340 350 360  
 EEIDNEHPWTKPVSSNFSTSPYVWMLDAEDLADIEDTVEWRHRNVESLCVMTASNFSCS  
 370 380 390 400 410 420  
 TSGCFSKDIVGLRTSVCWQHCASPAFAYCGHSFCCTGTALRTMSSLPESSAMCRKAART  
 430 440 450 460 470 480  
 RLPRGKDLIYFGSEKSDQETGRVLLFSLSLSGCYQITDHGLRVLTGGLPYLEHLNLSGC  
 490 500 510 520 530 540  
 LTITGAGLQDLVSACPSLNDEYFYCDNINGPHADTASGCQNLQCGFRACCRSGE\*PLTS  
 550 560 570 580 590  
 DLCLLHLAEQAFFHALYS\*HISCVNHPFLSVTCFGPIXYNFRNLNYQXIVML

FIG. 24A

10 20 30 40 50 60 70 80 90  
ACAACACTGCTCTCAGAGGATACTGCAGAACTCCTTAGAGGTCTTAGCCTATGGAATCATGCTGAAGAGCGACAGAARTTTTAAATATTCC  
100 110 120 130 140 150 160 170 180  
GTGGATGAAAAGTCAGATAAAGCAGAAGTGTGAGAACTCCACAGGTATAACCCATCTTCCTCCTGAGGTAATGCTGTCAATTTTCAGCT  
190 200 210 220 230 240 250 260 270 280  
ATCTTAATCCTCAAGAGTTATGTCGATGCAGTCAAGTAAGCATGAAATGGTCTCAGCTGACAAAAACGGGATCGCTTTGGAAACATCTTTACCC  
290 300 310 320 330 340 350 360 370  
TGTTCATTGGGCCAGAGGTGACTGCTATAGTGGTCCCGCAACTGAACTTGATCTGAACTGATGATGAATGGGTGAAAAATAGGAAAGATGAA  
380 390 400 410 420 430 440 450 460 470  
AGTCGTGCTTTTCATGAGTGGGATGAAGATCCTGACATTGATGAATCTGAAGAGTCTGCGGAGGAATCAATTGCTATCAGCATTGCACAAATGG  
480 490 500 510 520 530 540 550 560  
AAAAACGTTTACTCCATGGCTTAATTCATAACGTTCTACCATATGTTGGTACTTCTGTAAAAACCTTAGTATTAGCATACAGCTCTGCAGTTTC  
570 580 590 600 610 620 630 640 650  
CAGCAAAATGGTTAGGCAGATTTTAGAGCTTTGTCTAACCTGGAGCATCTGGATCTTACCCAGACTGACATTTTCAGATTCTGCATTTGACAGT  
660 670 680 690 700 710 720 730 740 750  
TGGTCTTGGCTTGGTGTCTGCCAGAGTCTTCGGCATCTTGATCTGTCTGGTGTGAGAAAAATCAGAGATGTGGCCCTAGAGAAGATTTCCAGAG  
760 770 780 790 800 810 820 830 840  
CTCTTGAATTTCTGACATCTCATCAAAGTGGCTTTTGAACATCTACAAGCAAAATTAATCTCAACTGCGTGGAAAAATAAGACATTACCAT  
850 860 870 880 890 900 910 920 930 940  
GCAGTCCACCAAGCAGTATGCCTGTTTGCACGATTTAACTAACAAGGGCAATGGAGAAGAAATAGATAATGAACACCCCTGGACTAAGCCTGTT  
950 960 970 980 990 1000 1010 1020 1030  
TCTTCTGAGAAATTTCACTTCTCCTTATGTGTGGATGTTAGATGCTGAAGATTTGGCTGATATTGAAGATACTGTGGAATGGAGACATAGAAATG  
1040 1050 1060 1070 1080 1090 1100 1110 1120  
TTGAAAGTCTTTTGTAATGGAAACAGCATCCAACCTTATGTTGTTCCACCTCTGGTTGTTTATAGTAAGACATTGTTGGACTAAGGACTAGTGT  
1130 1140 1150 1160 1170 1180 1190 1200 1210 1220  
CTGTTGGCAGCAGCATTGTGCTTCTCCAGCCTTTCGGTATTTGGTCACTCATTGTTGTGACAGGAACAGCTTTAAGAACTATGTCATCACTC  
1230 1240 1250 1260 1270 1280 1290 1300 1310  
CCAGAATCTTCTGCAATGTGTAGAAAAGCAGCAAGGACTAGATTGCCTAGGGGAAAAGACTTAATTTACTTTGGGAGTGAAAAATCTGATCAAG  
1320 1330 1340 1350 1360 1370 1380 1390 1400 1410  
AGACTGGACGTGTACTTCTGTTTCTCAGTTTATCTGGATGTTATCAGATCAGACCATGGTCTCAGGGTTTTGACTCTGGGAGGAGGGCTGCC  
1420 1430 1440 1450 1460 1470 1480 1490 1500  
TTATTTGGAGCACCTTAATCTCTCTGTTGTCTTACTATAACTGGTGCAGGCCTGCAGGATTTGGTTTCAGCATGCTCTCTCTGAATGATGAA  
1510 1520 1530 1540 1550 1560 1570 1580 1590  
TACTTTTACTACTGTGACAACATTAAACGGTCTCATGCTGATACCGCCAGTGGATGCCAGAATTTGCAGTGTGGTTTTGAGCCTGCTGCCGCT  
1600 1610 1620 1630 1640 1650 1660 1670 1680 1690  
CTGGCGAATGACCCCTGACTTCTGATCTTTGTCTACTTCAATTTAGCTGAGCAGGCTTTCTTTTCATGCACTTTACTCATAGCACATTTCTTGTGT  
1700 1710 1720 1730 1740 1750 1760 1770  
TAACCATCCCTTTTGGCGTGACTTGTGTTGGGCCCATTTNYTTACAACCTCAGAAATCTTAATTACCAGTGRATTGTAATGTTG

FIG. 24B

10 20 30 40 50 60  
RVTSGCGLARGSSAMVFSNNDEGLINKKLPKELLRIFSFLDIVTLRCRAQISKAWNILA

70 80 90 100 110 120  
LDGSNWQRIDLNFQIDVEGRVVENISKRCVGFLRKLSLRGCIGVGDSSLKTFAQNCRNI

130 140 150 160 170 180  
EHLNLNGCTKITDSTCYSLSRFCSKLKHLXLTSCVSITNSSLKGISEGCRNLEYLNLWC

190 200 210 220 230 240  
DQITKDGIEALVRGCRGLKALLRGCTQLEDEALKHIQNYCHELVSLNLQSCSRITDEGV

250 260 270 280 290 300  
VQICRGCHRLQALCLSGCSNLTDASLTALGLNCPRLQILEAARCSHLTDAGFTLLARNCH

310 320 330 340 350 360  
ELEKMDLEXCILITDSTLIQLSIHCPKLQALSLSHCELIXDDGILHLSNSTCGHERLRVL

370 380 390 400 410 420  
ELDNCLLITDVALXHLNCRGLERLELYDCQVTRAGIKRMRAQLPHVKVHAYFAPVTPP

430 440 450 460 470 480  
TAVAGSGQRLCRCCVIL\*QQLPGPKG\*\*GILSSRRPESS\*PTPPSPNLLILHWERHLQFP

490 500 510 520 530 540  
NRHLSRFKNGEDKKGFISNI\*HHIVT\*NMALT\*LVLLLPSSLMSSLTSTHLLL\*YL\*RLI

550  
ILKTDQGTGPASKYINCVQ\*

FIG. 25A

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10 20 30 40 50 60 70 80 90  
TTTACTGTACACAGTTGATGATTTTGTATGCTGGGCTGTCTGGTCTGTCTTGTAGGATTATTAACCTTTAGAGGTATCAGAGAAGCAATGGG

100 110 120 130 140 150 160 170 180  
TACTGGTGAGGCTGCTCATTAGGGAAGAGGGCAAAAGGAGCACTAGCTAGGTGAGGCCATGTTTCAGGTGACAATGTGATGTCAGATGTTGCT

190 200 210 220 230 240 250 260 270 280  
TATAAATCCTTTCTTGTCTTGGCCATTCTTAAATCTTGATAGGTGCTGTGGGAACTGTAAATGCCTTTCCCAATGGAGAATCAACAGATTG

290 300 310 320 330 340 350 360 370  
GGTGATGGTGGAGTCGGTCAGGAAGACTCAGGTCTCTAGAGGAAAGGATGCTCATCACCCCTTNGGCCAGGCAGCTGCTGTCAGAGAATGA

380 390 400 410 420 430 440 450 460 470  
CACAGCACCTGCACAGTCGCTGTCCACTTCTGCCACTGCTGTGGTGGGGTGACGGGAGCAAGTAGGCGTGGACTTTGACATGAGGGAGCTG

480 490 500 510 520 530 540 550 560  
AGCCCGCATCCGCTTGATCCCTGCACGGGTAACTGTGTCAGTGTACAGTTCGAGGGCTCCAGGCTCGGCAGTTCTCTAGGTGTTCAGG

570 580 590 600 610 620 630 640 650  
GCCACATCAGTGATGAGGAGCAGTTGTCCAACTCCAGTACCCGAGCCTCTCATGCCCCACAGGTACTGTTGCTCAGGTGCAGGATCCCATCAT

660 670 680 690 700 710 720 730 740 750  
CTGKGATGAGTTCACAGTGGGACAGGCTCAGGGCTTGCACTTTAGGACAGTGAATGGAGAGCTGGATGAGTGTGCTGTGGTTATCAGGATGCA

760 770 780 790 800 810 820 830 840  
WTCTCAAGATCCATCTTCTCCAATTCTGTCGCAATTCGAGCTAAAGGTGTAACCTGCGTCAGTCAAAATGGGAGCATCGGGCAGCCTCCAAA

850 860 870 880 890 900 910 920 930 940  
ATTTGCAGTCCGGACAGTTCAAACCCAGGGCTGTAAAGAGGCACTCTGTGAGGTGCTGCAACCCGAAAGGCAGAGAGCCTGTAGCCGTGAC

950 960 970 980 990 1000 1010 1020 1030  
AGCCCTGCATATCTGCACACACCTTCATCCGTGATACGTGAGCAGGACTGCAAGTTGAGGCTCACAAGCTCATGGCAGTAATCTGAATGTG

1040 1050 1060 1070 1080 1090 1100 1110 1120  
TTTCAGAGCTTCATCTTCTAACTGTGTGCAGCCCTCAGGAGCAGGGCTTTCAGGCTCGACAACCTCGCACCAGTGCCTCGATGCCATCCTTC

1130 1140 1150 1160 1170 1180 1190 1200 1210 1220  
GTGATCTGATCACACCAAGAGAGGTTTCAGGTACTCCAGGTTTCGGCAGCCCTCACTGATCCCTTCAAGGAGCTGTTTGTAAATAGACACAGG

1230 1240 1250 1260 1270 1280 1290 1300 1310  
AGGTGAGAACAGATGTTTCAGCTTGAACAGAAATCTGCTAAGGCTATAACAGTGTCTGTCAGTGATTTTGTGTCATCCATTGAGGTTCAAATG

1320 1330 1340 1350 1360 1370 1380 1390 1400 1410  
TTCAATGTTTCGGCAGTTCTGTGCAAGGTCTTCAAGGAGGAATCCCAACCAATGCAGCCTCGCAAGCTGAGCTTCTCAGGAATCCAAAG

1420 1430 1440 1450 1460 1470 1480 1490 1500  
CATCGCTTCGAGATATTTTCCACCACCTGACCCCTCTACATCTATTTGAAAGTTAAAAAGATCTATTCTTTGCCAGTTGCTTCCATCCAGGGCTA

1510 1520 1530 1540 1550 1560 1570 1580 1590  
AGATGTTCCAAGCCTTGAAATCTGTGCACATCGGCACAAAGTTACTATATCCAAGAAGGAAAATATTCTTAACAGAAGTTCTTTGGGTAAGTT

1600 1610 1620 1630 1640 1650 1660 1670 1680  
TTTGTAAATAAGCCTTCATCATGTTTGTAGAAAAACATGGCCGAAGAGCCGCGAGCCACAGCCCGAAGTCACACGGC

FIG. 25B



10 20 30 40 50 60  
 MSPVFPMLTVLTMFYICLRRRARTATRGEMMNTHRAIESNSQTSPLNAEVVQYAKEVVD  
 70 80 90 100 110 120  
 FSSHYGSENSMSYTMWNLAGVPNVFPSSGDFQTAVFRTYGTWWDQCPSASLPFKRTPPN  
 130 140 150 160 170 180  
 FQSQDYVELTFEQQVYPTAVHVLETYHPGAVIRILACSANPYSPNPPAEVRWEILWSERP  
 190 200 210 220 230 240  
 TKVNASQARQFKPCIKQINFPTNLIRLEVNSSLLEYTELDVAVLHGVDKPVLSLKTSL  
 250 260 270 280 290 300  
 IDMNDIEDDAYAEKDGCGMDSLNNKFSSAVLGEGPNNGYFDKLPYELIQLILNHLTLPDL  
 310 320 330 340 350 360  
 CRLAQTCCKLLSQHCCDPLQYIHLNLQPYWAKLDDTSLEFLQSRCTLVQWLNL SWTGNRGF  
 370 380 390 400 410 420  
 ISVAGFSRFLKVCSELVRLELSCSHFLNETCLEVISEMCPNLQALNLSSCDKLPPQAFN  
 430 440 450 460 470 480  
 HIAKLCSLKRLVLYRTKVEQTALLSILNFCSELQHLSLGSCVMIEDYDVIA SMIGAKCKK  
 490 500 510 520 530 540  
 LRTL DLWRCKNITENGIAELASGCPLEELD LGWCPTLQSSSTGCFTRLAHQLPNLQKLFL  
 550 560 570 580 590 600  
 TANRSVCDTDIDELACNCTRLQQLDILGTRMVSPASLRKLL ESCKDLSLLDV SFCSQIDN  
 610 620  
 RAVLELNASFPKVF I KKSFTQ

FIG. 26A

10 20 30 40 50 60 70 80 90  
ATGTCACCGGTCTTTCCCATGTTAACAGTTCTGACCATGTTTATATATATATGCCTTCGGCGCCGAGCCAGGACAGCTACAAGAGGAGAAATGA  
100 110 120 130 140 150 160 170 180  
TGAACACCCATAGAGCTATAGAATCAAACAGCCAGACTTCCCTCTCAATGCAGAGGTAGTCCAGTATGCCAAGAAGTAGTGGATTTCAGTTC  
190 200 210 220 230 240 250 260 270 280  
CCATTATGGAAGTGAGAATAGTATGCTCTATACTATGTGGAATTTGGCTGGTGTACCAAATGTATTCCTCAAGTTCTGGTGACTTTACTCAGACA  
290 300 310 320 330 340 350 360 370  
GCTGTGTTTCGAACCTTATGGGACATGGTGGGATCAGTGTCTAGTGTCTTCTTGCCTTCAAGAGGACGCCACCTAATTTTCAGAGCCAGGACT  
380 390 400 410 420 430 440 450 460 470  
ATGTGGAACCTTACTTTTGAACAACAGGTGTATCCTACAGCTGTACATGTTCTAGAAAACCTATCATCCCGAGCAGTCATTAGAATTCTCGCTTG  
480 490 500 510 520 530 540 550 560  
TTCTGCAAACTCTTATTCGCCAAATCCACAGCTGAAGTAAGATGGGAGATTCTTTGGTCAGAGAGACCTACGAAGGTGAATGCTTCCCAAGCT  
570 580 590 600 610 620 630 640 650  
CGCCAGTTTAAACCTTGTATTAAGCAGATAAATTTCCCCACAAATCTTATACGACTGGAAGTAAATAGTTCTCTTCTGGAATATTACACTGAAT  
660 670 680 690 700 710 720 730 740 750  
TAGATGCAGTTGTGCTACATGGTGTGAAGGACAAGCCAGTGCTTCTCTCAAGACTTCACCTATTGACATGAATGATATAGAAGATGATGCCTA  
760 770 780 790 800 810 820 830 840  
TGCAGAAAAGGATGGTGTGGAATGGACAGCTTTAACAAGTTTAGCAGTGCTGCTCGGGGAAGGGCCAAATAATGGGTATTTTGATAAA  
850 860 870 880 890 900 910 920 930 940  
CTACCTTATGAGCTTATTACAGCTGATTCTGAATCATCTTACACTACCAGACCTGTGTAGATTAGCACAGACTTGCAAACTACTGAGCCAGCATT  
950 960 970 980 990 1000 1010 1020 1030  
GCTGTGATCCTCTGCAATACATCCACCTCAATCTGCAACCACTACTGGGCAAACTAGATGACACTTCTCTGGAATTTCTACAGTCTCGCTGCAC  
1040 1050 1060 1070 1080 1090 1100 1110 1120  
TCTTGTCAGTGGCTTAATTTATCTTGGACTGGCAATAGAGGCTTATCTCTGTGTCAGGATTTAGCAGGTTTCTGAAGGTTTGTGGATCCGAA  
1130 1140 1150 1160 1170 1180 1190 1200 1210 1220  
TTAGTACGCCCTTGAATGTCTTGCAGCCACTTTCTTAATGAACTTGCTTAGAAGTTATTTCTGAGATGTGTCCAAATCTACAGGCCCTTAAATC  
1230 1240 1250 1260 1270 1280 1290 1300 1310  
TCTCCTCTGTGATAAGCTACCACCTCAAGCTTTCAACCACATTGCCAAGTTATGCAGCCTTAAACGACTTGTCTCTATCGAACAAAAGTAGA  
1320 1330 1340 1350 1360 1370 1380 1390 1400 1410  
GCAACAGCACTGCTCAGCATTTTGAACTTCTGTTCAGAGCTTCAGCACCTCAGTTTAGGCAGTTGTGTCATGATTGAAGACTATGATGTGATA  
1420 1430 1440 1450 1460 1470 1480 1490 1500  
GCTAGCATGATAGGAGCCAAGTGTAAGAACTCCGGACCTGGATCTGTGGAGATGTAAGAATATTACTGAGAATGGAATAGCAGAACTGGCTT  
1510 1520 1530 1540 1550 1560 1570 1580 1590  
CTGGGTGTCCACTACTGGAGGAGCTTGACCTTGGCTGGTGCCAACTCTGCAGAGCAGCACCGGGTGCTTACCAGACTGGCACACCAGCTCCC  
1600 1610 1620 1630 1640 1650 1660 1670 1680 1690  
AAACTTGCAAAAACCTTTCTTACAGCTAATAGATCTGTGTGACACAGACATTGATGAATGGCATGTAATGTACCAGGTTACAGCAGCTG  
1700 1710 1720 1730 1740 1750 1760 1770 1780  
GACATATTAGGAACAAGAATGGTAAGTCCGGCATCCTTAAGAAAACCTCTGGAATCTGTAAAGATCTTTCTTACTTGATGTGCTCTCTGTT  
1790 1800 1810 1820 1830 1840 1850 1860  
CGCAGATTGATAACAGAGCTGTGCTAGAACTGAATGCAAGCTTTCCAAAAGTGTTCATAAAAAGAGCTTTACTCAGTGA

FIG. 26B

202070" 2724007

10	20	30	40	50	60
MQLVPDIEFKITYTRSPDGDGVGNSYIEDNDDDSKMADLLSYFQQQLTFQESVLKLCQPE					
70	80	90	100	110	120
LESSQIHISVLPMEVLMIYIFRWVSSDLDLRSLEQLSLVCRGFYICARDPEIWRACLKV					
130	140	150	160	170	180
WGRSCIKLVPYTSWREMFLERPRVRFDGVYISKTTYIRQGEQSLDGFYRAWHQVEYYRYI					
190	200	210	220	230	240
RFFPDGHVMMLTTPPEEPQSIVPRLRTRNTRTDAILLGHYRLSQDTDNQTKVFAVITKKKE					
250	260	270	280	290	300
EKPLDYKYRYFRRVPVQEADQSFHVGLQLCSSGHQRFNKLIWIHHSCHITYKSTGETAVS					
310	320				
AFEIDKMYTPLFFARVRSYTAFSERPL					

FIG. 27A

10 20 30 40 50 60  
 ATGCAACTTGTACCTGATATAGAGTTCAAGATTACTTATACCCGGTCTCCAGATGGTGATGGCGTTGGA  
 70 80 90 100 110 120 130  
 AACAGCTACATTGAAGATAATGATGATGACAGCAAAATGGCAGATCTCTTGTCTACTTCCAGCAGCAA  
 140 150 160 170 180 190 200  
 CTCACATTTTCAGGAGTCTGTGCTTAAACTGTGTCAGCCTGAGCTTGAGAGCAGTCAGATTCACATATCA  
 210 220 230 240 250 260 270  
 GTGCTGCCAATGGAGGTCCTGATGTACATCTTCCGATGGGTGGTGTCTAGTGAAGTGGACCTCAGATCA  
 280 290 300 310 320 330 340  
 TTGGAGCAGTTGTCGCTGGTGTGCAGAGGATTCTACATCTGTGCCAGAGACCCTGAAATATGGCGTCTG  
 350 360 370 380 390 400 410  
 GCCTGCTTGAAAGTTTGGGGCAGAAGCTGTATTAAACTTGTTCGCTACACGTCTCTGGAGAGAGATGTTT  
 420 430 440 450 460 470 480  
 TTAGAACGGCCTCGTGTTCGGTTTGATGGCGTGTATATCAGTAAAACCATATATTCGTCAAGGGGAA  
 490 500 510 520 530 540 550  
 CAGTCTCTTGATGGTTTCTATAGAGCCTGGCACCAAGTGAATATTACAGGTACATAAGATTCTTTTCTT  
 560 570 580 590 600 610 620  
 GATGGCCATGTGATGATGTTGACAACCCCTGAAGAGCCTCAGTCCATTGTTCCACGTTTAAGAACTAGG  
 630 640 650 660 670 680 690  
 AATACCAGGACTGATGCAATTCTACTGGGTCACTATCGCTTGTACAAGACACAGACAATCAGACCAA  
 700 710 720 730 740 750  
 GTATTTGCTGTAATAACTAAGAAAAAGAAAAACCCTTGACTATAAATACAGATATTTTCGTCGT  
 760 770 780 790 800 810 820  
 GTCCCTGTACAAGAAGCAGATCAGAGTTTTTCATGTGGGGCTACAGCTATGTTCCAGTGGTCACCAGAGG  
 830 840 850 860 870 880 890  
 TTCAACAACTCATCTGGATACATCATTCTTGTCACATTACTTACAAATCAACTGGTGAGACTGCAGTC  
 900 910 920 930 940 950 960  
 AGTGCTTTTGAGATTGACAAGATGTACACCCCTTGTTCCTCGCCAGAGTAAGGAGCTACACAGCTTTC  
 970 980  
 TCAGAAAGGCCTCTGTAG

FIG. 27B

1004247 010702

10	20	30	40	50	60
AALDPDLENDDFFVRKTGAFHANPYVLRAFEDFRKFSEQDDSVERRIILQCREGELVLPD					
70	80	90	100	110	120
LEKDDMIVRRIPAQKKEVPLSGAPDRYHPVFPPEPWTLPEIQAKFLCVLERTCPSKEKS					
130	140	150	160	170	180
NSCRILVPSYRQKKDDMLTRKIQSWKLGTTPPISFTPGPCSEADLKRWEAIREASRLRH					
190	200	210	220	230	240
KKRLMVERLFQKIYGENGSKSMSDVSAEDVQNLRLRYEEMQKIKSQLKEQDQKWQDDLA					
250					
KWKDRRKSYSYTSDLQK					

FIG. 28A

10 20 30 40 50 60  
GCAGCCCTGGATCCTGACTTAGAGAATGATGATTTCTTTGTCAGAAAGACTGGGGCTTTCCATGCAAAT

70 80 90 100 110 120 130  
CCATATGTTCTCCGAGCTTTTGAAGACTTTAGAAAGTTCTCTGAGCAAGATGATTCTGTAGAGCGAGAT

140 150 160 170 180 190 200  
ATAATTTTACAGTG TAGAGAAGGTGAAC TTGTACTTCCGATT TGGAAAAAGATGATATGATTGTTCCGC

210 220 230 240 250 260 270  
CGAATCCCAGCACAGAAGAAAGAAGTGCCGCTGTCTGGGGCCCCAGATAGATACCACCCAGTCCCTTTT

280 290 300 310 320 330 340  
CCCGAACCCTGGACTCTTCTCCAGAAATCAAGCAAAATTTCTCTGTGTACTTGAAAGGACATGCCCA

350 360 370 380 390 400 410  
TCCAAAGAAAAAGTAATAGCTGTAGAATATTAGTTCCTTCATATCGGCAGAAGAAAGATGACATGCTG

420 430 440 450 460 470 480  
ACACGTAAGATT CAGTCCTGGAAACTGGGAACTACCGTGCCTCCCATCAGTTTCACNCCTGGCCCCCTGC

490 500 510 520 530 540 550  
AGTGAGGCTGACTTGAAGAGATGGGAGGCCATCCGGGAGGCCAGCAGACTCAGGCACAAGAAAAGGCTG

560 570 580 590 600 610 620  
ATGGTGGAGAGACTCTTTCAAAGATTTATGGTGAGAAATGGGAGTAAGTCCATGAGTGATGTCAGCGCA

630 640 650 660 670 680 690  
GAAGATGTTCAAACCTTGCGTCAGCTGCGTTACGAGGAGATGCAGAAAATAAAATCACAATTAAAAGAA

700 710 720 730 740 750  
CAAGATCAGAAATGGCAGGATGACCTTGCAAAATGGAAAGATCGTTCGAAAAAGTTACACTTCAGATCTG

760  
CAGAAG

FIG. 28B

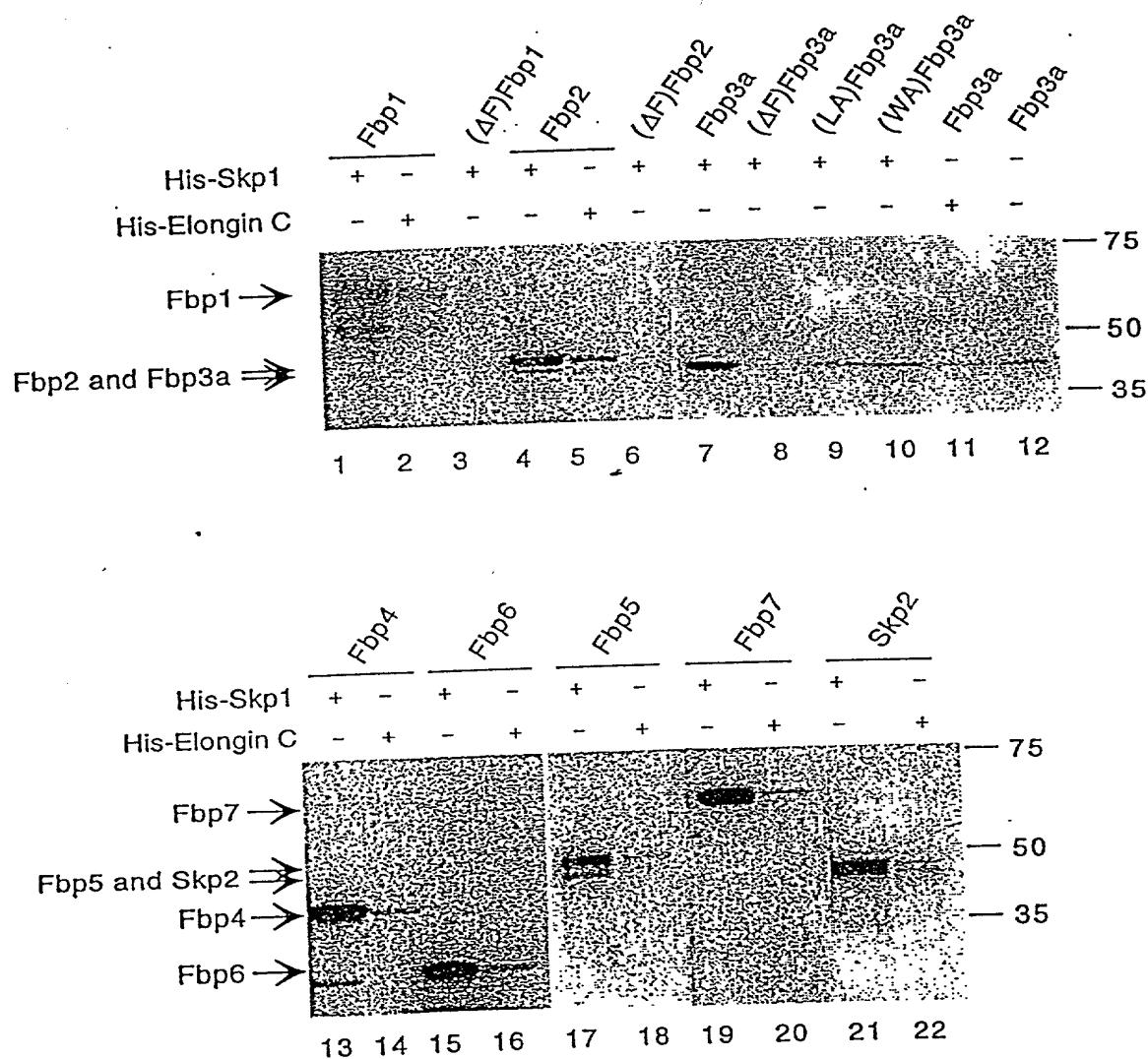


FIG. 29

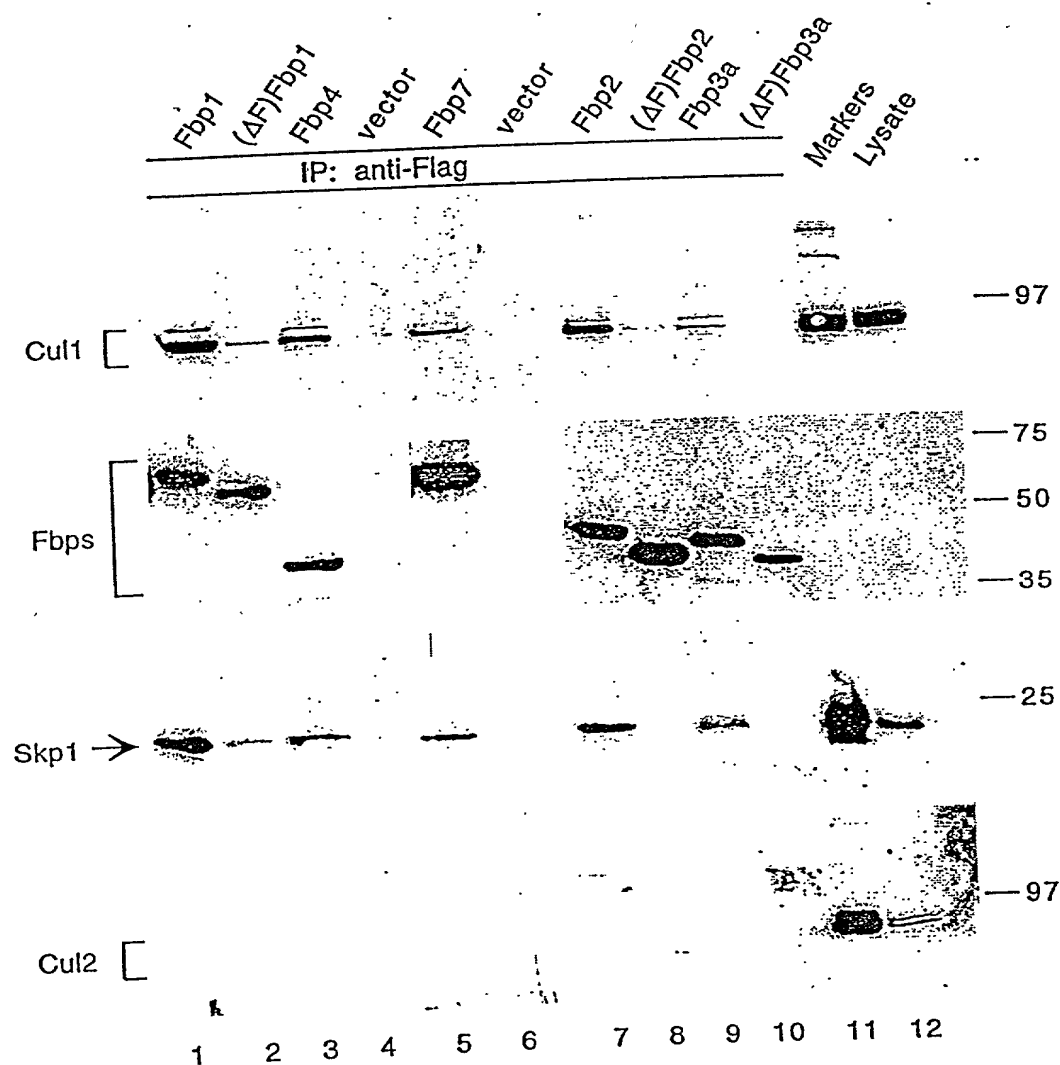


FIG. 30



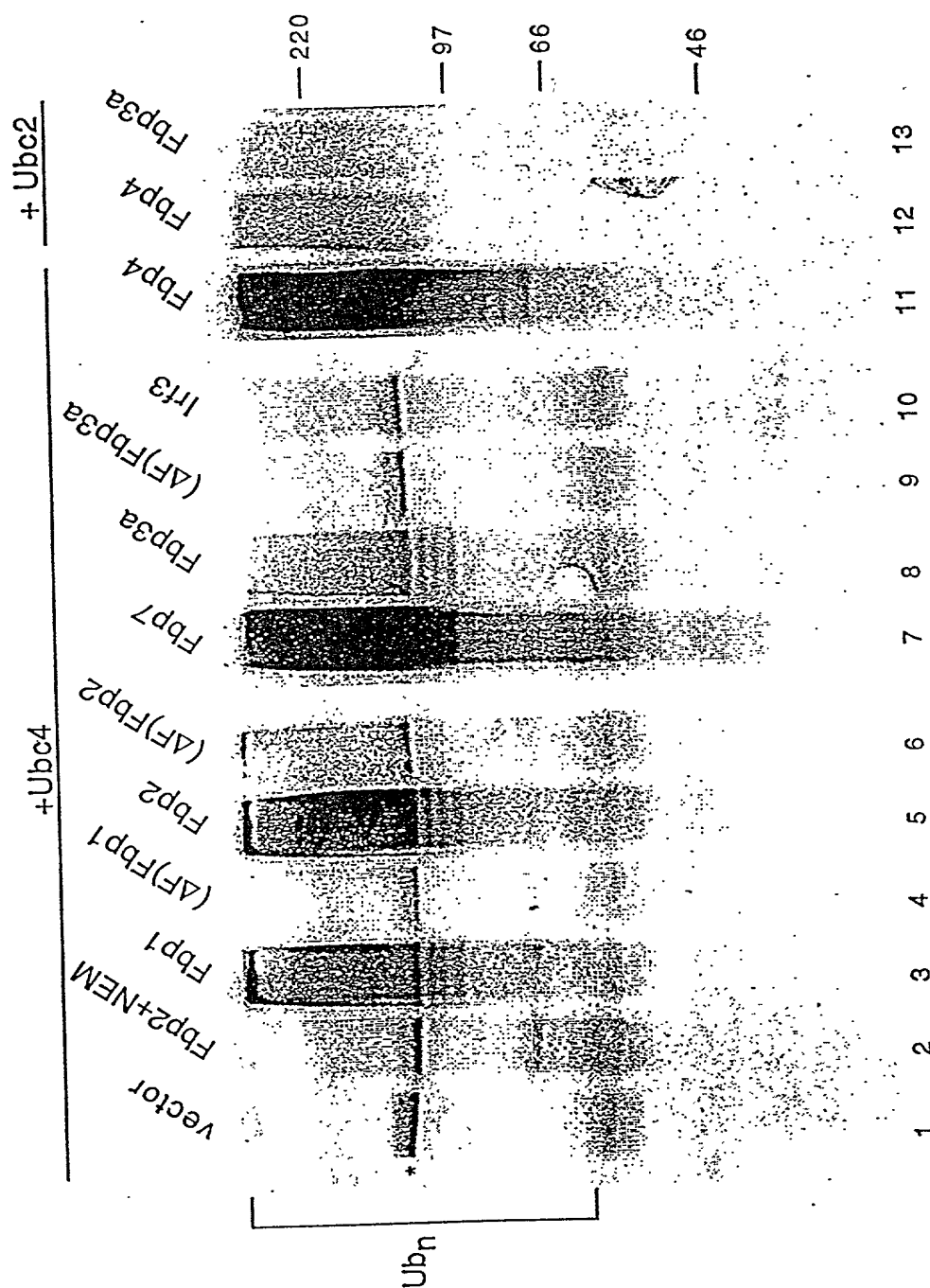


FIG. 31

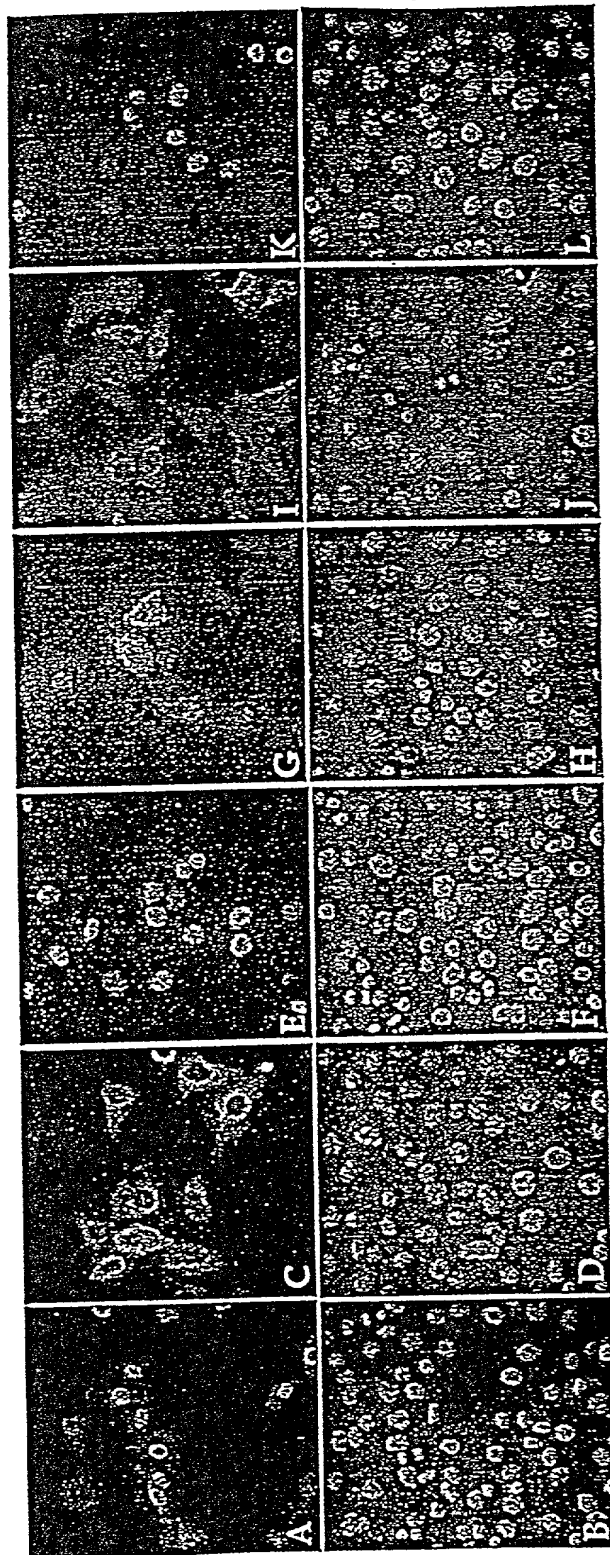


FIG. 32

20/07/02 "F42400T"

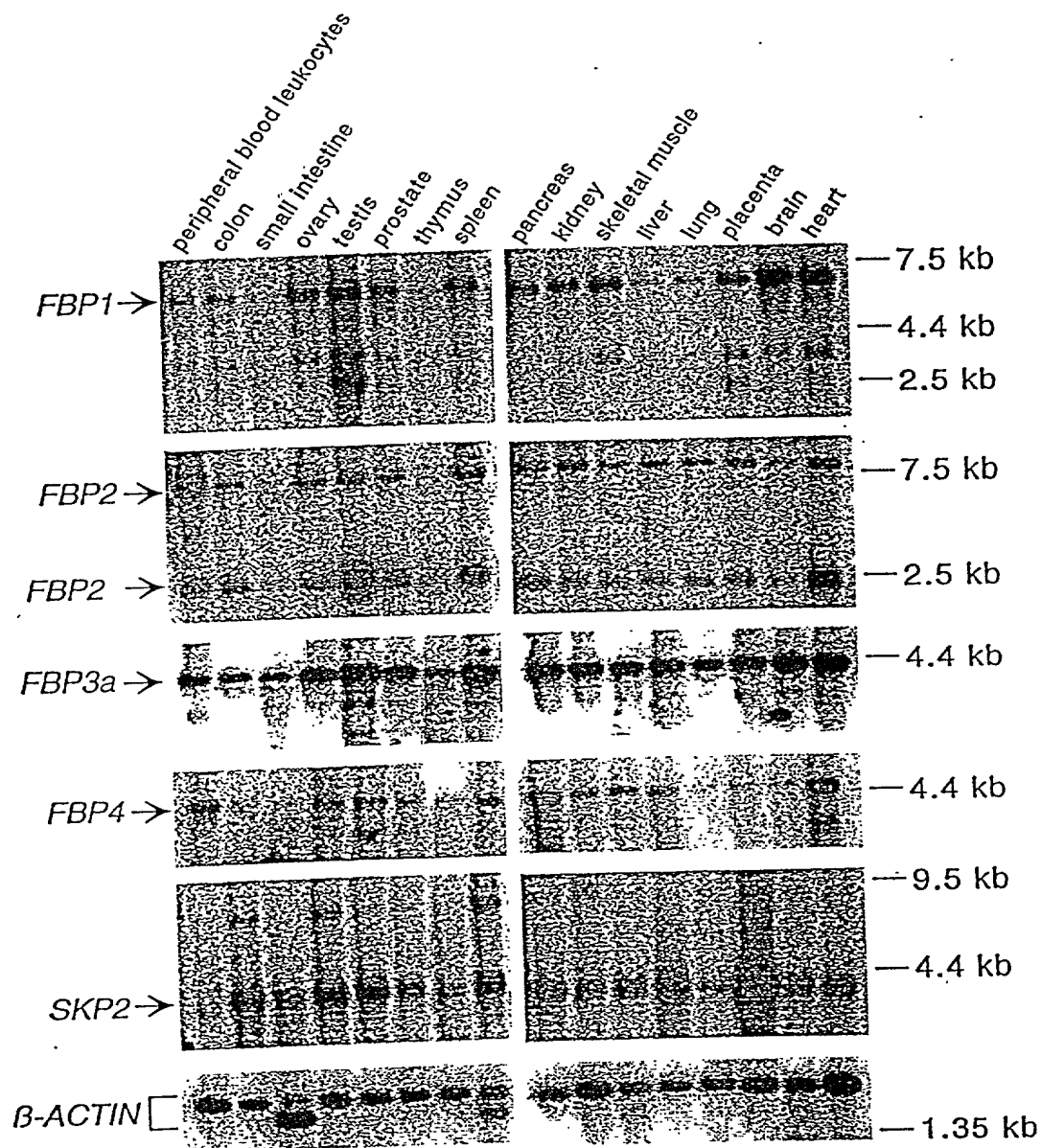


FIG. 33

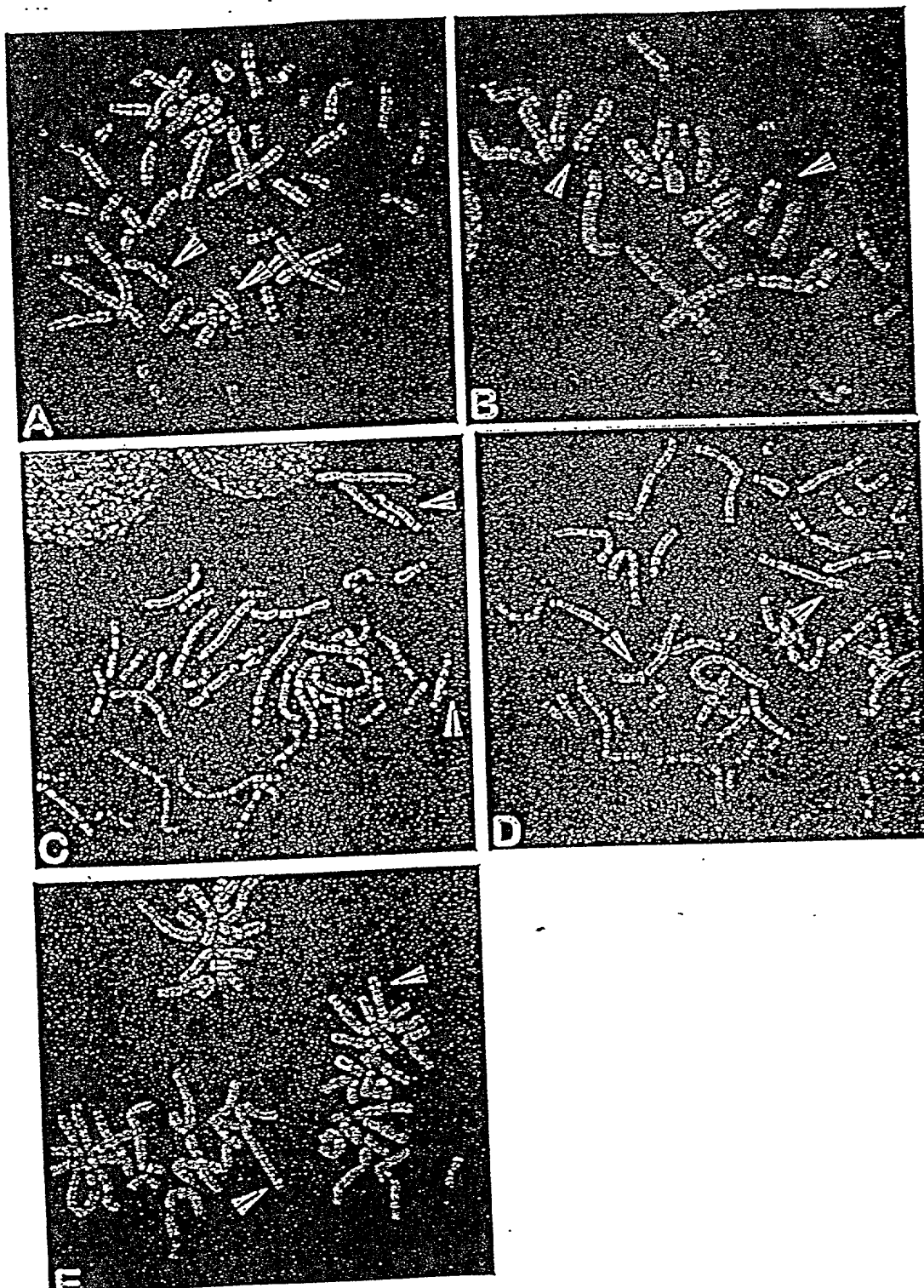


FIG. 34 A-E

202070" 7142400F  
10042417 .010702

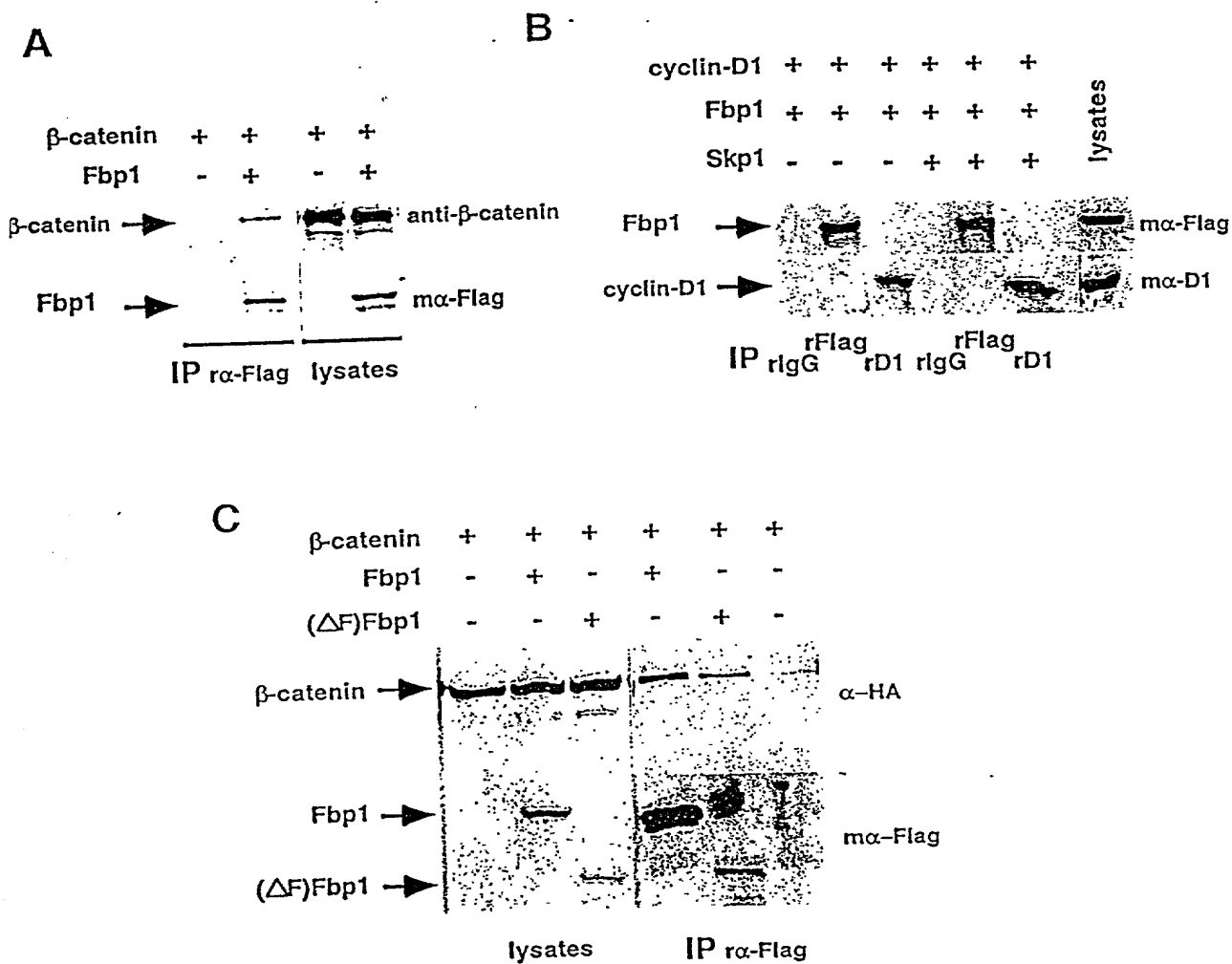


FIG. 35 A-C

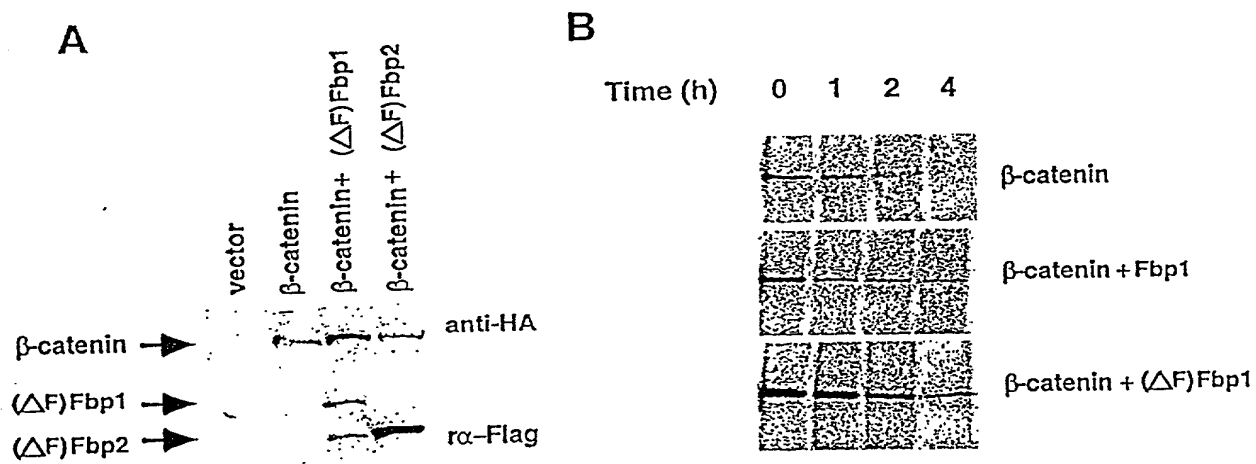


FIG. 36 A-B

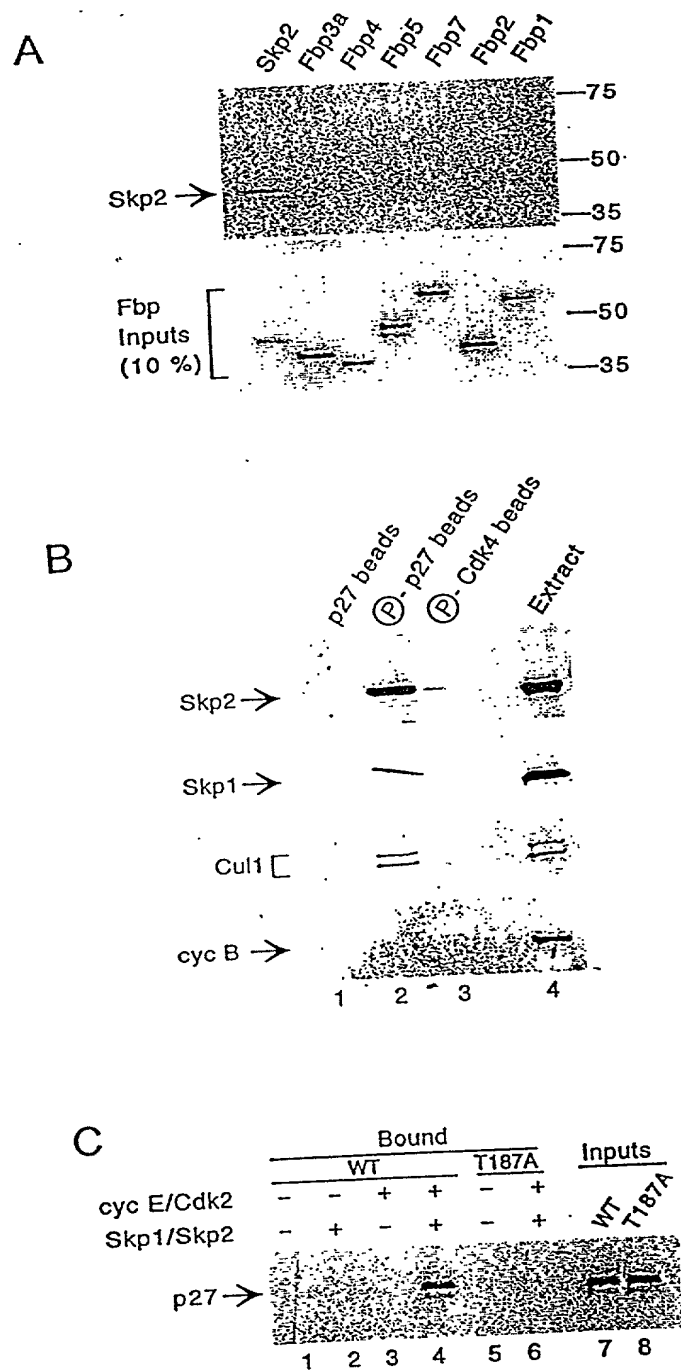


FIG. 37 A-C

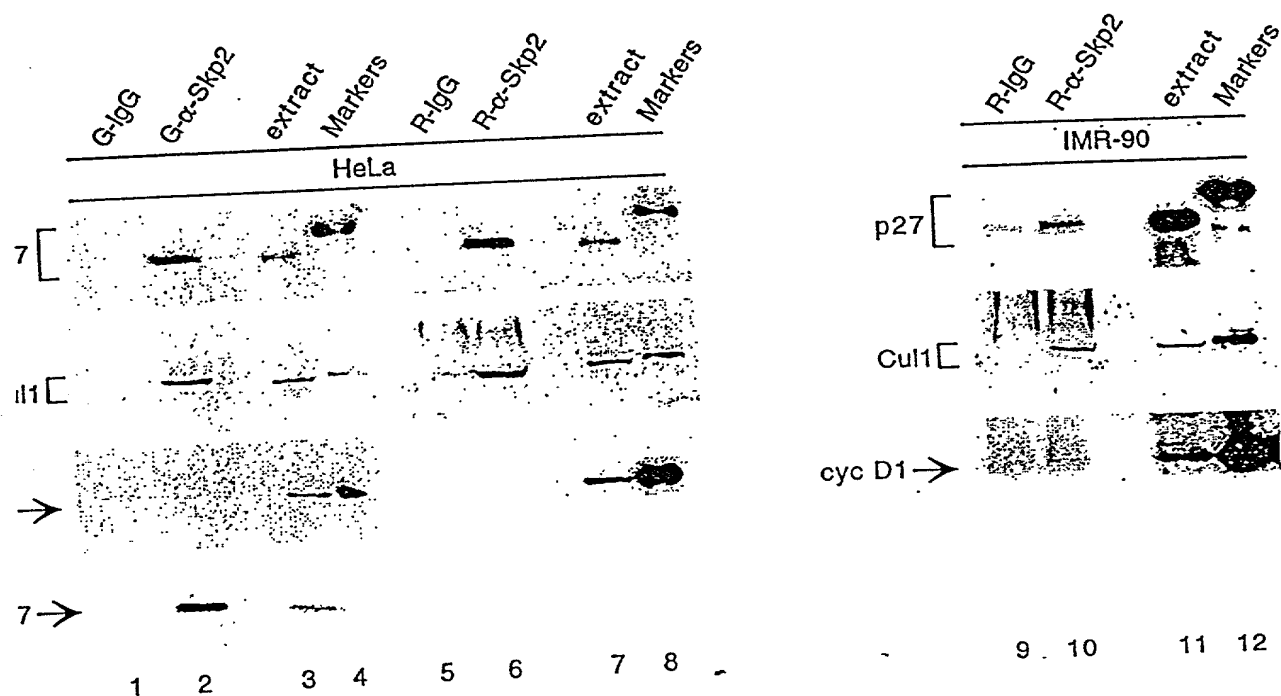


FIG. 38



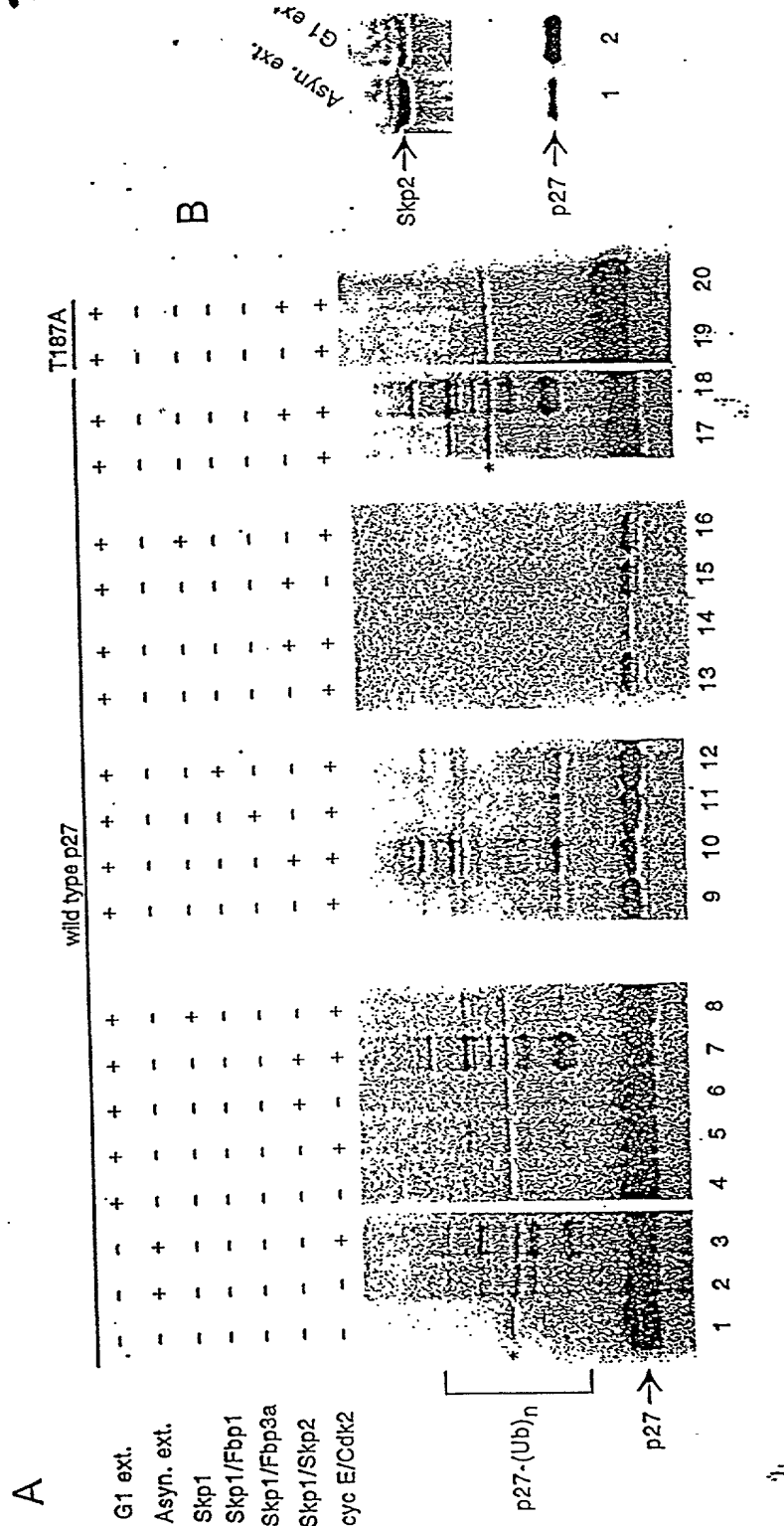


FIG. 39 A-B

5914-090

(SHEET 66 OF 80)

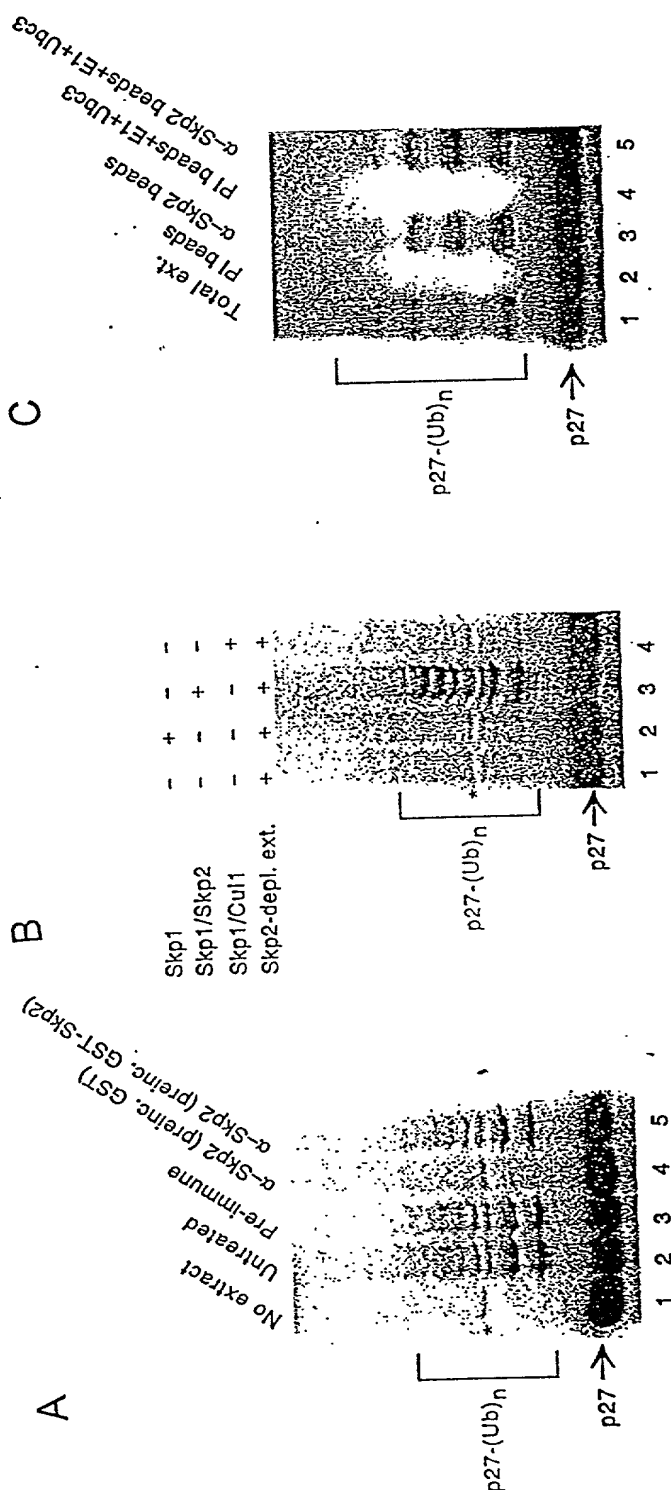
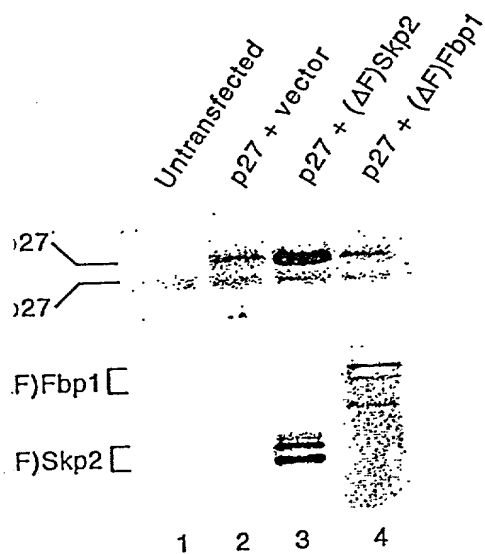


FIG. 40 A-C



B

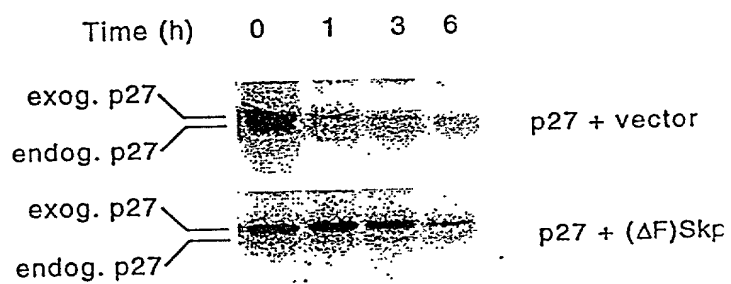


FIG. 41 A-B

204070-1424001

5914-090

(SHEET 68 OF 80)

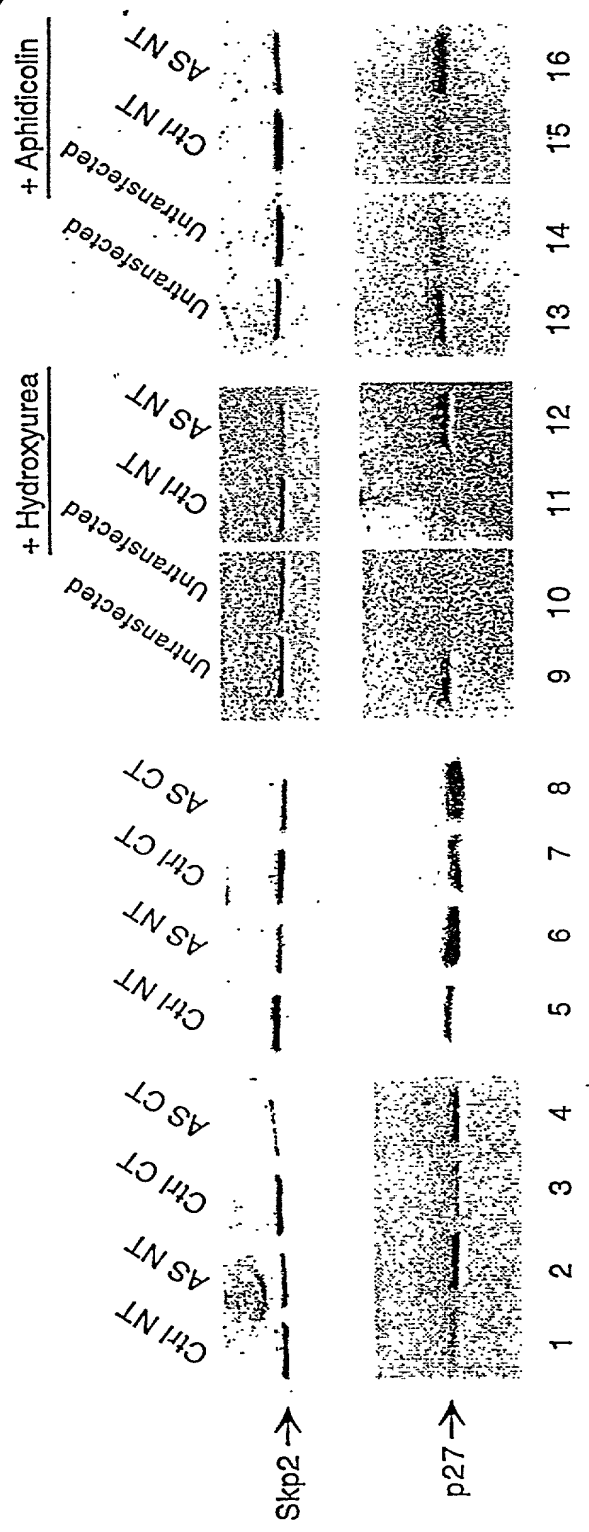


FIG. 42

5914-090

(SHEET 69 OF 80)

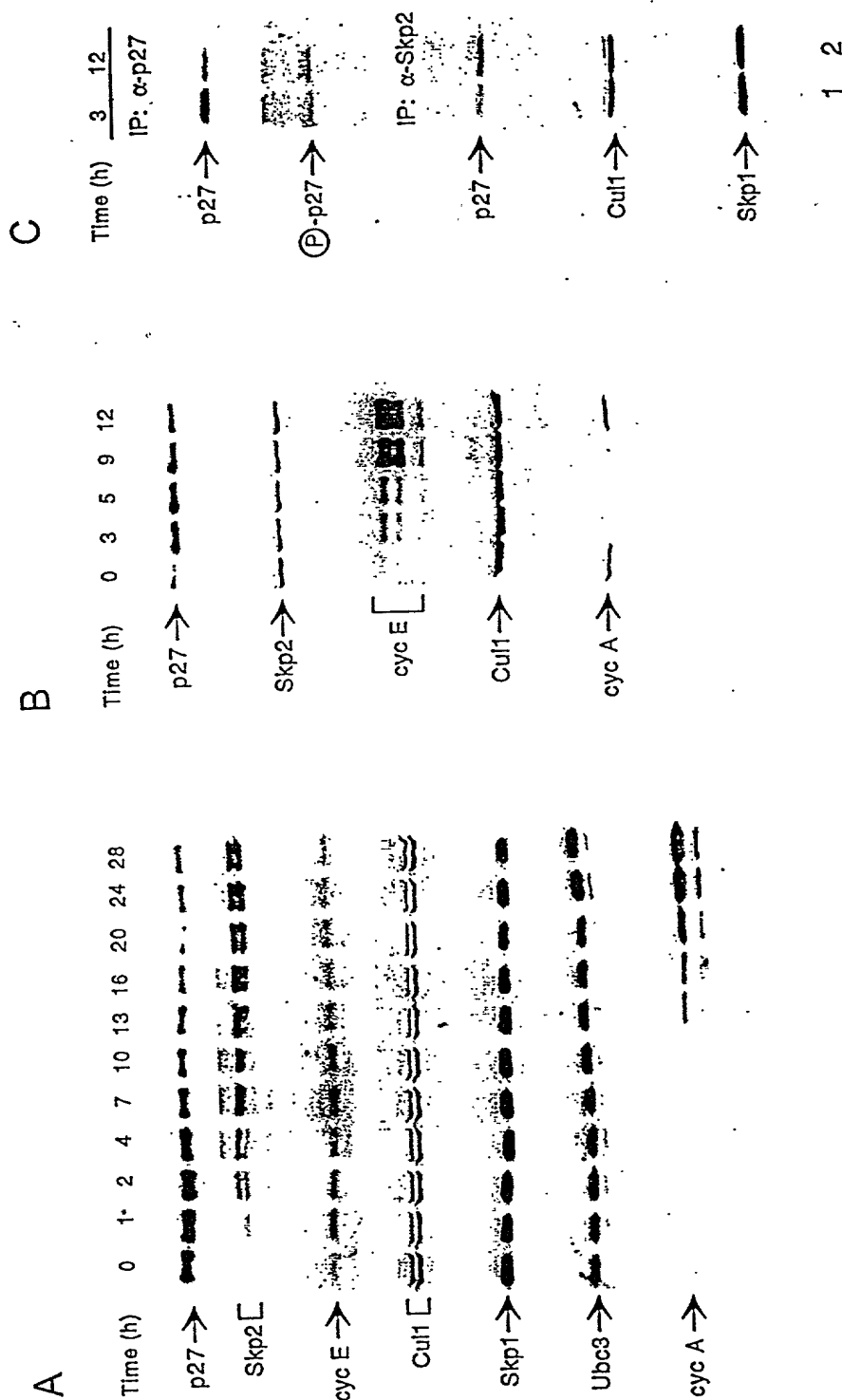


FIG. 43 A-C

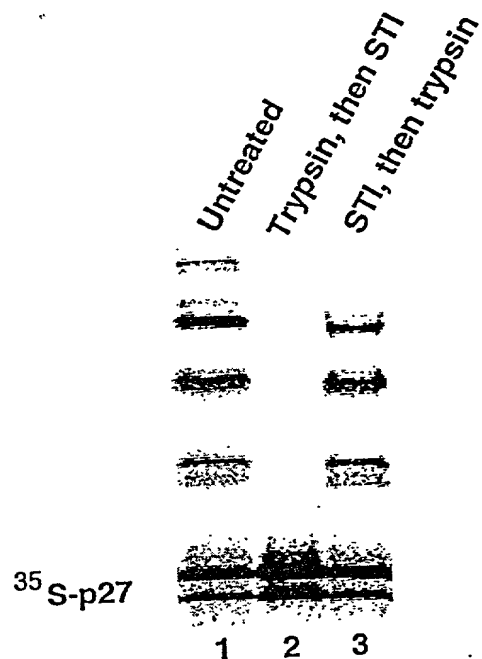


FIG. 44

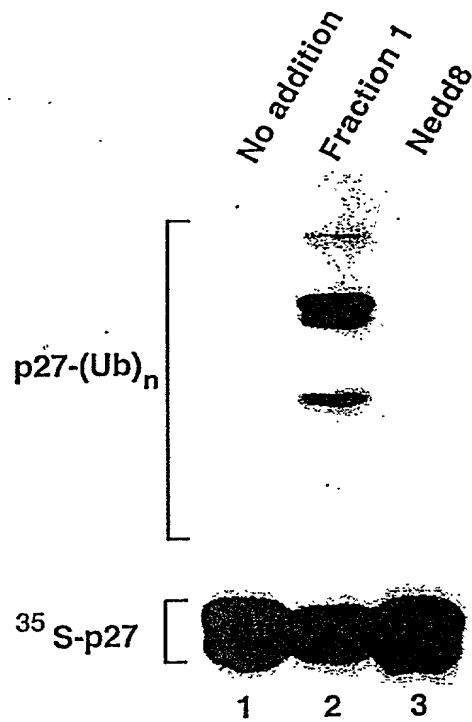
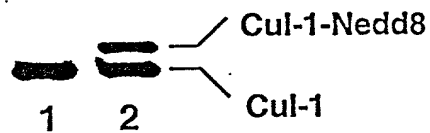
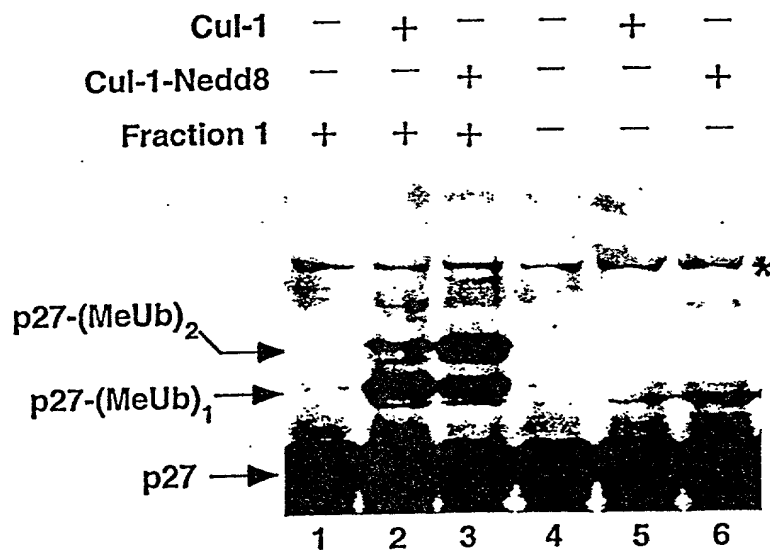
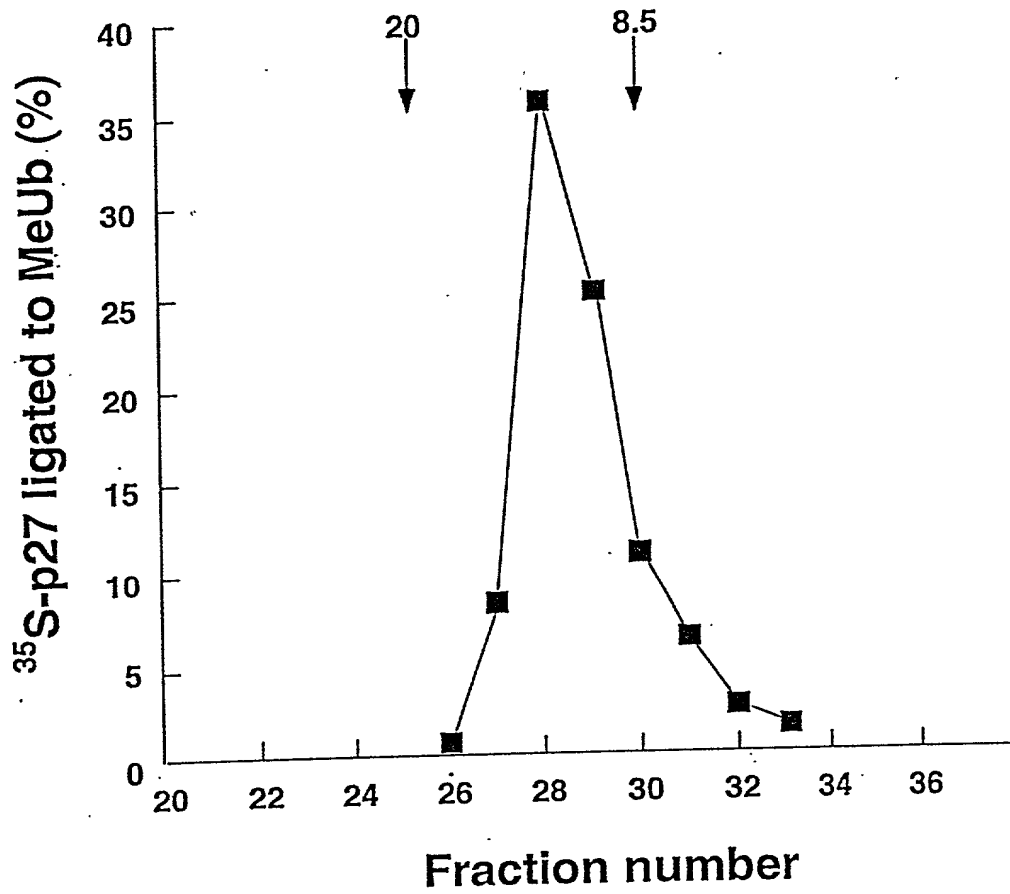
**A****B****C**

FIG. 45

A.



B.

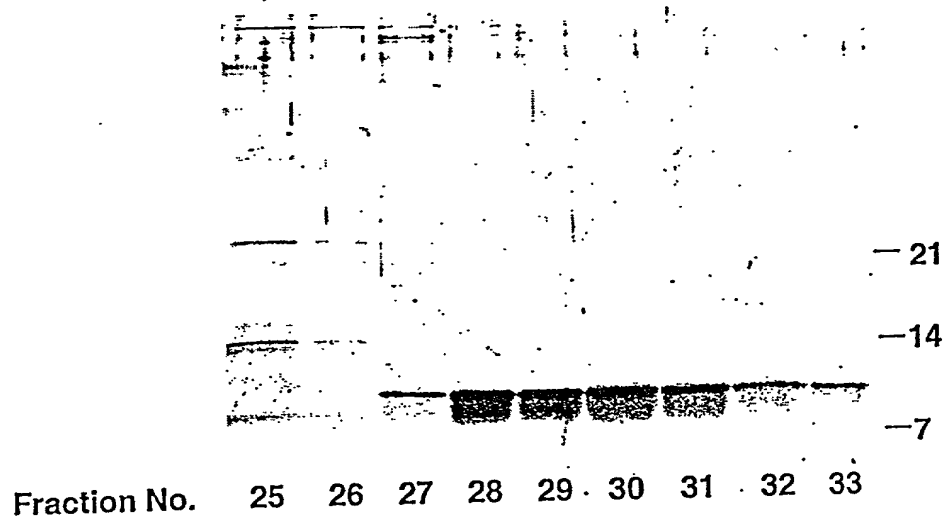


FIG. 46



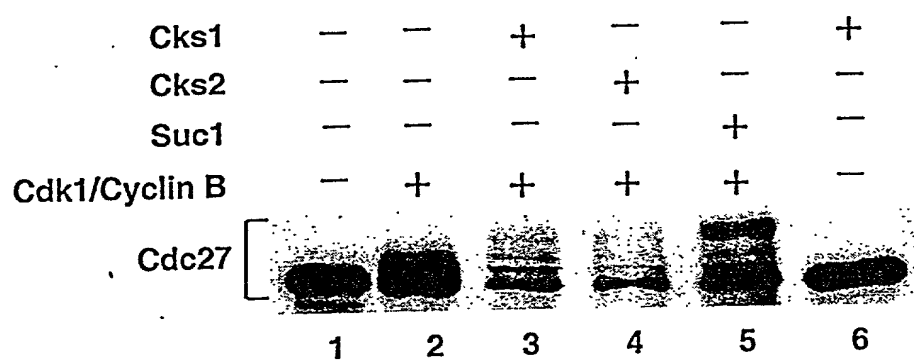


FIG. 47

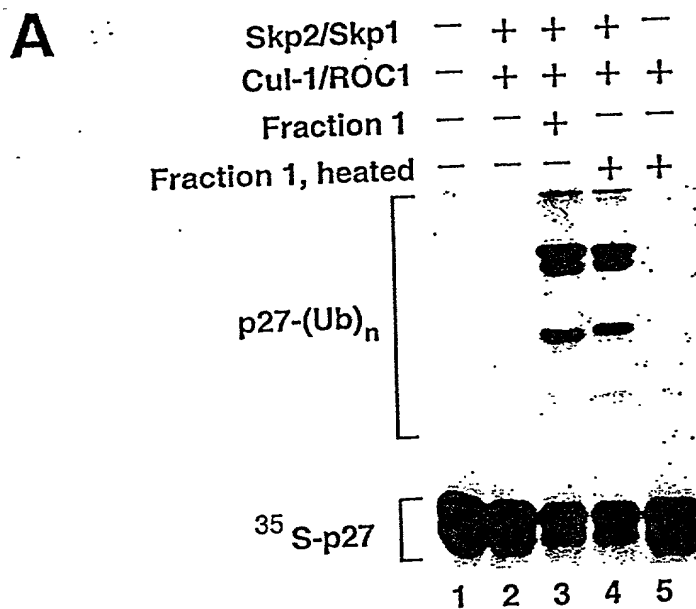


FIG. 48

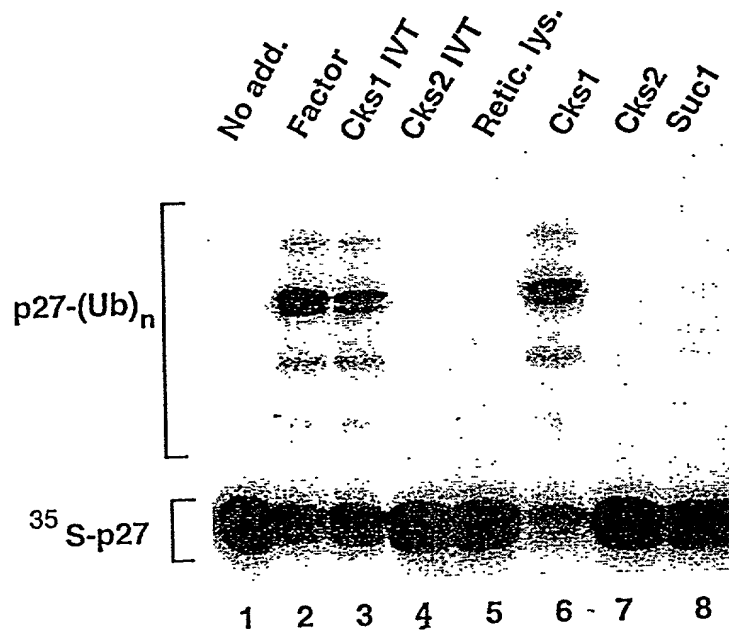
**B**

FIG. 48

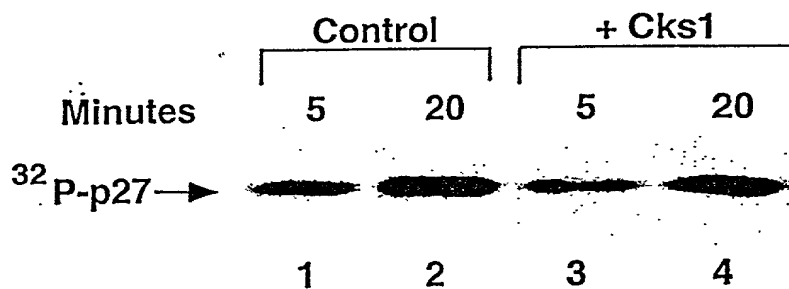
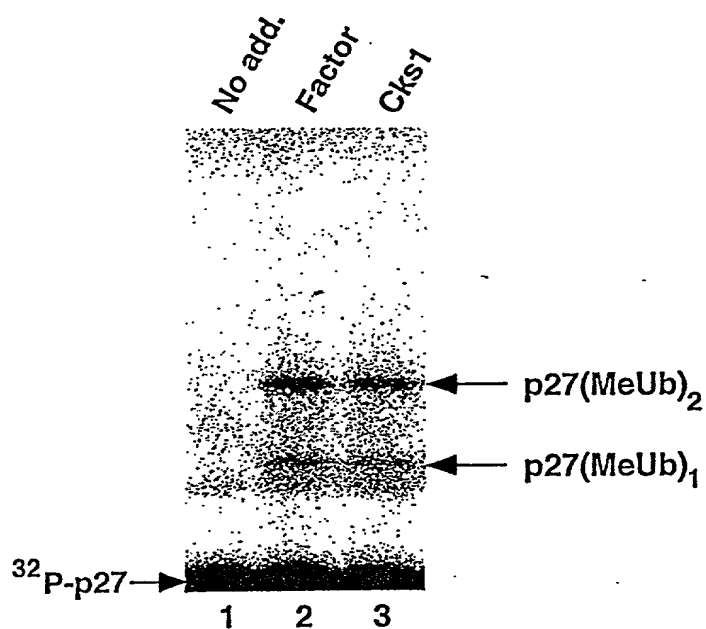
**A****B**

FIG. 49

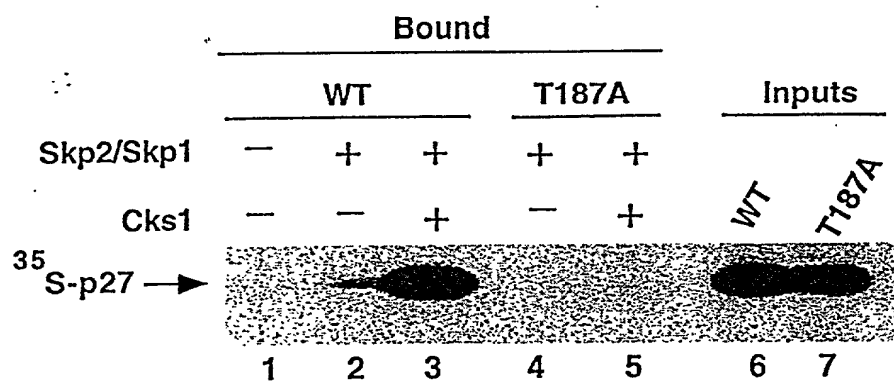
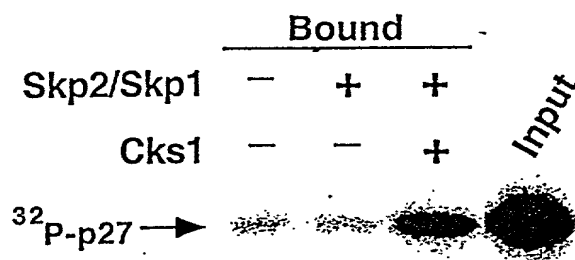
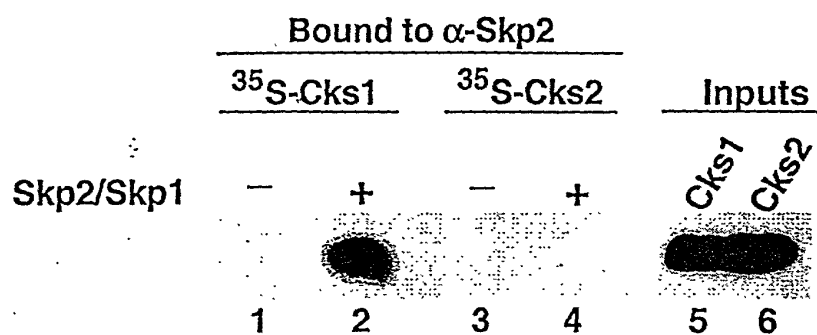
**C****D**

FIG. 49

A



B

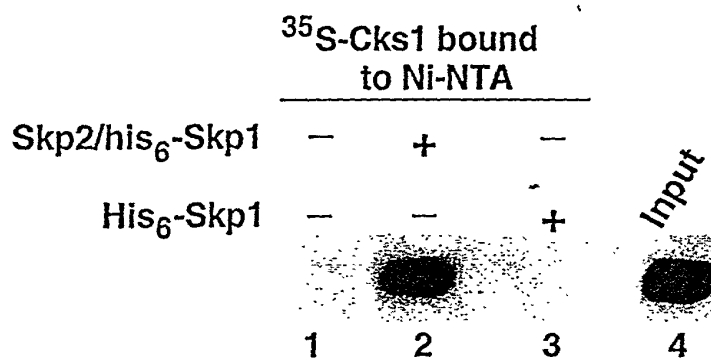


FIG. 5D

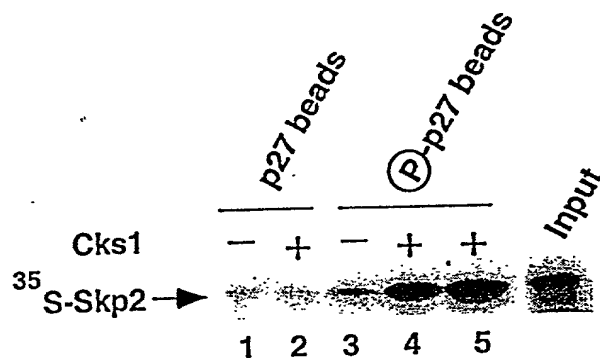
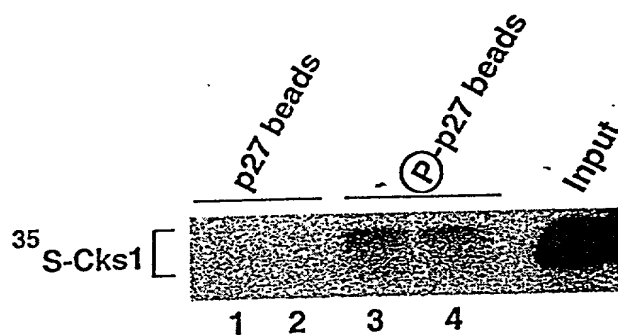
**C****D**

FIG. 5D

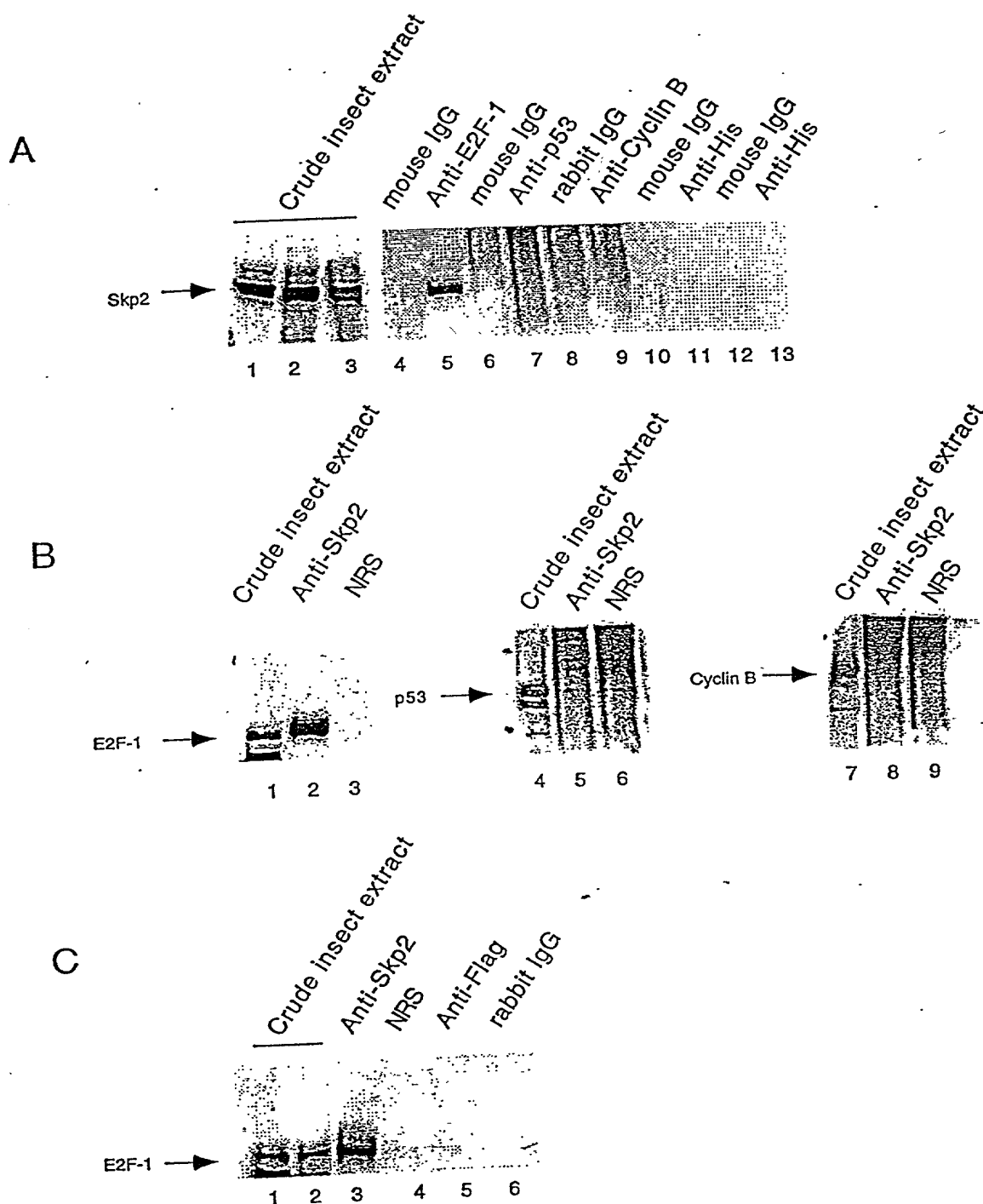


FIG. 51 A-C